Challenging the Status Quo in Higher Education

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Abstract: This article acknowledges the intricate nature of higher education, recognizing its complexities and the multiple interactions among various stakeholders such as teachers, students, policymakers, parents, professional associations, politicians, the economy, and society. While briefly touching upon the Bologna reforms, the article primarily focuses on several crucial aspects of education. First, it delves into the realm of brain science to explore learning and teaching. Second, it addresses prevailing myths and misconceptions about learning and thinking that continue to be widely believed by teachers. Third, it examines biases present among both teachers and education policy makers. Fourth, it discusses the working conditions experienced by academics, and fifth, it outlines a project and a teaching method that could ignite transformation of HEIs.

Keywords: Change Management, Dual-Process Theory, Higher Education, Learning, Research-Based Teaching.

INTRODUCTION

The journey towards reforming the European higher education system began with a gathering in Bologna back in 1988. On the University of Bologna's 900th anniversary, numerous university rectors convened to commemorate the event. A decade later, a group of four education ministers convened in Sorbonne, where they crafted the Sorbonne Declaration. This document emphasized the imperative to provide our students and society with an exceptional higher education system, one that offers them optimal opportunities to explore and excel in their respective fields (Sorbonne, 1998). The momentum of the reform gained traction in 1999, when education ministers from 29 European countries congregated in Bologna to further deliberate on educational reform.

The implementation of reforms varies across countries in terms of both quality and scope, ranging from small-scale structural changes to significant shifts in educational philosophy (Crosier, 2007). Often, valuable ideas are inadequately put into practice, and in certain cases, due to national policies scholars have been transformed into businesspersons, with knowledge being perceived as a commodity and higher education institutions viewed as mere participants in the market. Over the past 25 years, both advocates and critics of the Bologna reforms have utilized grandiose language to describe their positions.

Our objective is not to provide a conclusive overview of the higher education landscape in Slovenia. Instead, we aim to highlight significant issues that should be either completely avoided or given greater emphasis in our everyday teaching and learning practices. It appears that during the transitional phase, particularly one that spans a period of more than thirty years, maintaining common sense can sometimes be extremely challenging.

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BRAIN SCIENCE SUPPORTED LEARNING AND TEACHING

The essence of education lies in facilitating the process of learning. Any learning and teaching require a deep understanding of the role of neuroscience, which involves understanding the mental processes involved in these two activities. Education encompasses more than the acquisition of isolated facts and skills; it primarily centers around acquiring the ability to learn and value lifelong learning, because education extends beyond the school years and should last an individual's entire lifespan. Speaking of lifelong education, it is crucial to recognize that our brain is constantly changing due to neuroplasticity, which strengthens neural connections when they are activated. Conversely, neuroplasticity diminishes with age, making it slightly more challenging to embark on learning a second language at the age of 50, particularly for individuals who are not mentally agile. Education, not coffee or Ritalin, stands as the most potent cognitive enhancer (Bostrom and Sandberg, 2009) by equipping us with strategies for abstract thinking, problem-solving, and enhancing mental flexibility. Moreover, exercise and sleep profoundly impact our memory, motivation, concentration, and other cognitive functions (DangVu et al., 2010).

Deans for Impact (2015) have outlined six crucial elements regarding learning that hold relevance for educators. When students encounter new knowledge and ideas, they build upon their existing knowledge and ideas. For effective learning, the transfer of information from working memory to long-term memory is necessary. Students, like all individuals, possess limited working memory capacities that can be easily overwhelmed by cognitively demanding tasks. To successfully learn and retain new information, students need to organize the material in a meaningful manner. In this process, providing effective feedback that is clear, specific, task-focused, and aimed at improvement (rather than solely verifying performance) is vital. The acquired knowledge and skills hold practical value only if students can apply them to unfamiliar problems or

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situations within or beyond the classroom. Furthermore, students' motivation and success levels are enhanced when they understand that intelligence and ability can be enhanced through diligent effort throughout one's life.

Deans for Impact (2015) also emphasize the importance for teachers to be able to identify prevalent misconceptions in cognitive science that pertain to teaching and learning. While three particularly harmful misconceptions will be discussed in the subsequent section, it is essential to highlight two of them here: 1. Novices and experts do not engage in thinking processes in the same manner (Glaser and Chi, 1988) and 2. Cognitive development does not unfold through a rigid sequence of age-related stages (Willingham, 2008).

The first misconception challenges the notion that individuals at different levels of expertise think in identical ways. Contrary to this belief, research by Glaser and Chi (1988) reveals that novices and experts approach thinking and problem-solving from distinct perspectives. Experts possess deep conceptual understanding and employ more sophisticated cognitive strategies, whereas novices rely on surface-level knowledge and often struggle with complex tasks. Understanding this distinction is vital for educators, as it allows them to tailor their teaching approaches and provide appropriate support to students at different proficiency levels.

The second misconception questions the idea that cognitive development unfolds through predetermined stages that are strictly tied to chronological age. Willingham (2008) highlights that the progression of cognitive abilities is not solely determined by age-related factors. Instead, cognitive development is influenced by a complex interplay of various factors, including environmental influences, experiences, and individual differences. This means that learners can exhibit different rates and patterns of cognitive growth, emphasizing the need for educators to consider individual student characteristics and provide differentiated instruction. By dispelling these misconceptions and gaining a deeper understanding of the complexities of cognitive science, teachers can enhance their instructional practices and better support students' learning.

Before we continue, it is important to caution the reader about a significant matter: if you were to search for the terms "learning," "teaching," and "brain" on Google, you would be astounded by the sheer number (approximately 307,500,000 as of June 29, 2023) of search results, many of which have a commercial nature. Moreover, there is an abundance of books, games, and training courses claiming to enhance learning and backed by neuroscience. However, what they often offer are the propagation of neuromyths (Geake, 2008) and the proliferation of pseudo-profound information, both of which harm the credibility and impact of neuroscience. It is not surprising, then, that neuroscience is seldom incorporated into teacher training programs or has not yet been embraced as a tool for evidence-based education policy, despite the existence of an expanding body of neuroscience research that could aid in evaluating the effectiveness and influence of various educational approaches.

LEARNING AND TEACHING MISCONCEPTIONS

When it comes to misconceptions surrounding learning and teaching processes, it is important to address several notable ones. Firstly, the notion that humans utilize only 10% of their brains has been debunked by Boyd (2008). Research indicates that the brain is a highly interconnected organ, with various regions working in harmony to perform a multitude of functions. Secondly, the belief that individuals are predominantly "right-brained" or "left-brained" in their brain usage has been refuted by Nielson et al. (2013). It has been demonstrated that brain functions are distributed across both hemispheres, and there is no clear-cut division based on personality or cognitive traits.

Another misconception pertains to the idea that students have different learning styles, which has been debunked by Pasher et al. (2008). While it is true that individuals may have preferences for certain learning modalities or strategies, research suggests that the concept of fixed learning styles does not hold strong scientific support. Unfortunately, despite the debunking of these misconceptions, they continue to persist. A ProQuest search of social science journals conducted in October 2015 revealed 808 results for the search term "learning+style." Many of these results portrayed the concept of different learning styles in a positive light, with only a few questioning its validity. This prevalence of favorable views contributes to the persistence of neuromyths.

Many foreign language teachers have encountered individuals who peddle questionable practices to language learners. For instance, there are charlatans who claim that one can learn a language simply by listening to it while asleep. While it is true that the sleeping brain is engaged in information processing and memory consolidation, it does not function in the same manner as the conscious brain. We still have limited understanding of the precise activities of the sleeping brain. It is crucial to critically evaluate claims and separate fact from fiction, particularly when it comes to learning and the brain.

The realm of teaching and learning is rife with enduring myths. Even reputable sources like the TeachingEnglish website, a collaboration between the British Council and the BBC (2014), used to perpetuate such misconceptions. For instance, they asserted that students would achieve greater success if educators tailored their teaching style to match the supposed learning styles of individuals. These learning styles are often framed as being right- or left-brained, analytical versus dynamic, or visual versus auditory. It is important

to critically examine these claims and consider the current body of research. The notion that tailoring teaching to specific learning styles leads to improved outcomes lacks substantial empirical support. Numerous studies, including Coffield et al. (2004) and Pashler et al. (2008), have cast doubt on the effectiveness of this approach. They argue that individuals have a complex array of learning preferences and that rigidly categorizing them into fixed learning styles oversimplifies the process. Instead, adopting a more comprehensive and flexible approach that incorporates diverse teaching strategies is likely to be more beneficial for students. Furthermore, the concept of being right- or left-brained as a determinant of learning style has been widely discredited. Research has consistently demonstrated that cognitive functions are distributed across both hemispheres of the brain, with no clear-cut division based on personality or learning preferences. Similarly, the dichotomy of visual versus auditory learning styles oversimplifies the complexity of how individuals process and retain information. It is more accurate to acknowledge that individuals may have preferences for certain modalities, but these preferences do not necessarily equate to superior learning outcomes.

Effective teaching and learning practices can be promoted by educators and institutions only if they stay informed about current research findings and challenge prevailing myths. By embracing evidence-based approaches and recognizing the diverse needs and abilities of learners, we can create more inclusive and impactful educational environments.

BIASES

Both novice and experienced educators are susceptible to various biases, as the "law of least effort" applies to teachers just as it does to any other individuals. Drawing from the insightful work of Kahneman (2011) it becomes apparent that in our daily lives, we often rely on impressions and emotions to guide us. However, our intuitive beliefs and preferences are not always justified, and we can maintain unwarranted confidence in them. In fact, an impartial observer is often more likely to identify our errors than we are ourselves (Kahneman, 2011, p. 39). This raises concerns about the propensity of both teachers and education policymakers to rely predominantly on System 1 thinking. System 1 thinking operates on an automatic, rapid, emotional, stereotypical, and unconscious level. Conversely, System 2 thinking, which is deliberate, effortful, infrequent, analytical, and conscious, should ideally be employed. According to Kahneman, our minds do not naturally gravitate toward logical, rational, and critical thinking processes. Recognizing these cognitive tendencies is crucial for educators and policymakers as it highlights the importance of being mindful of our own biases and actively engaging in reflective practices that encourage the utilization of System 2 thinking. By consciously questioning our intuitive beliefs and preferences, we can strive for more informed and evidence-based decision-making in the realm of education.

Confirmation bias is a prevalent cognitive bias that often confronts teachers, compelling them to uphold their existing beliefs. Over time, it becomes effortless to assume that one's long-standing practices are inherently correct. An illustration of confirmation bias in real-life situations, when combined with the status quo bias (the inclination to favor maintaining the current situation), can be observed in the imperfect refinement of Business English courses offered at Slovenian business and economics higher education institutions. This topic was explored by Rižnar (2009), highlighting how these courses predominantly focused on preserving the existing status quo rather than embracing necessary improvements.

Confirmation bias in teaching is evident when educators actively seek evidence that aligns with their existing theories while disregarding contradictory evidence. As human beings, teachers also have a natural inclination to seek patterns that are familiar to them, as it provides a sense of understanding and validation. This inclination may explain why some teachers exhibit a strong preference for a single teaching method, such as project work. While project work can undoubtedly be an effective approach for facilitating learning in certain areas, it is important to recognize that it cannot be the sole method employed for teaching all subjects across all courses. Each subject and topic may require different instructional strategies and approaches to effectively engage students and promote comprehensive learning outcomes. Thus, it is crucial for educators to remain open-minded and embrace a diverse range of teaching methods that cater to the specific needs of different subjects and learners. By incorporating various instructional techniques and strategies into their pedagogical repertoire, teachers can create a dynamic and inclusive learning environment that maximizes student engagement and achievement.

Certain teachers, and to an even greater extent, education policymakers, can fall victim to the Dunning-Kruger Effect. This phenomenon suggests that individuals with limited knowledge or expertise are more likely to perceive themselves as highly knowledgeable or skilled. Consequently, some people exhibit a false sense of superiority, while even genuine experts may struggle to articulate their methods due to the assumption that their skills are self-evident or easily grasped by others. Many students, across various educational levels, are familiar with this illusory superiority displayed by some teachers. These educators either fail to acknowledge their own deficiencies in essential teaching skills or overlook genuine talent and proficiency in their students.

Optimism bias refers to the inclination to be excessively optimistic and overestimate positive and desirable outcomes. While the unrealistic optimism of preservice and novice teachers has been extensively examined in various studies (Weinstein, 1980; Kulik and

Mahler, 1987; Weinstein, 1988; Kearns, 1995), and the unrealistic performance expectations among low-scoring students have been discussed by researchers (Richman, 2010), insufficient attention has been given to the overoptimistic bias exhibited by experienced teachers and education policymakers. Although there is a substantial body of research exploring the optimistic tendencies of beginning teachers and the impact of unrealistic performance expectations on students, there remains a notable gap in the literature regarding the overoptimistic biases observed among seasoned educators and policymakers. Further investigation into this area can provide valuable insights into the potential consequences and implications of such biases on decision-making processes and educational policies. By recognizing and addressing these biases, education stakeholders can strive for a more balanced and evidence-based approach to teaching, learning, and policy development.

Within the realm of education, both educators and education policymakers frequently exhibit biases such as framing bias and substitution bias. Framing bias occurs when individuals adopt a narrow perspective and provide a limited or skewed portrayal of a situation or issue. This bias may lead to an incomplete understanding or misrepresentation of the complexities involved.

Similarly, substitution bias is prevalent among educators and policymakers, wherein they tend to replace a challenging question or problem with a simpler one that is more easily manageable. This bias stems from the desire to simplify complex issues or tasks, but it can result in oversimplification and the overlooking of crucial nuances or considerations. To illustrate these biases, consider an educator who presents a topic to students with a highly specific and limited viewpoint, failing to explore various perspectives or alternative interpretations. This framing bias restricts students' understanding and inhibits critical thinking. Likewise, an education policymaker may opt for a superficial and straightforward solution to a complex issue, neglecting the underlying complexities and potential long-term consequences.

Addressing these biases is essential to ensure a comprehensive and well-rounded approach to education. Educators and policymakers should strive to adopt a broader perspective, considering multiple viewpoints and engaging in interdisciplinary collaboration. By actively questioning their assumptions and seeking diverse perspectives, education stakeholders can mitigate the effects of framing bias and substitution bias, leading to more informed decision-making and effective educational practices.

ON PSEUDO-PROFOUND AND ON LEARNING TO WRITE BADLY

In today's academic landscape, numerous professors find themselves lacking the necessary motivation to prioritize teaching due to the prevailing pressure to publish. The publish-or-perish culture has created a situation where the absence of scholarly publications can significantly jeopardize a professor's career prospects. Consequently, many academics divert their attention towards generating an abundance of papers, often lacking substantial insights, which are then dispersed across a multitude of obscure periodicals that cater to their niche sub-sub-discipline, garnering limited interest from the broader academic community. This phenomenon raises concerns about the allocation of resources and the overall quality of education. The emphasis on quantity over quality in publishing can detract from the essential task of delivering impactful and engaging teaching experiences. Students may encounter professors who prioritize their research pursuits at the expense of providing meaningful instruction and guidance. To address this issue, it is crucial to reevaluate the academic reward system and create a more balanced approach that values both research contributions and effective teaching. By fostering an environment that encourages professors to excel in their pedagogical responsibilities, educational institutions can ensure that students receive the highest quality education while benefiting from the expertise of their professors.

In our society, we often find ourselves immersed in a world where the prevalence of meaningless and deceptive communication appears to be the norm. Harry G. Frankfurt (2005) astutely observes that "one of the most prominent characteristics of our culture" is the overwhelming presence of bullshit. It is a phenomenon that we all acknowledge and, to some extent, contribute to. However, because we have become accustomed to this situation, little scholarly attention has been devoted to exploring this subject in depth. Frankfurt contends that situations frequently arise where individuals are compelled to engage in speech that lacks any substantial or factual content. This phenomenon, he argues, is an inevitable consequence when someone is required to speak without possessing a genuine understanding of the subject matter at hand. The ubiquity of such empty discourse poses significant challenges, as it undermines the integrity and value of communication. Despite its pervasive nature, the investigation into the intricacies and implications of bullshit remains relatively scarce. Recognizing the presence and impact of empty speech is vital for fostering a more authentic and meaningful exchange of ideas. By delving into the study of bullshit and its various manifestations, we can cultivate a greater awareness and discernment in our communication practices, ultimately striving for more substantive and truthful dialogue.

Pennycook et al (2015) conducted a study that focused on a specific type of deceptive communication known as pseudo-profound bullshit. This refers to statements that possess grammatically correct structures but lack any meaningful content. In the initial draft of my paper, I entertained the idea of titling it 'From Oprah to Chopra,' drawing attention to an interview in 1993 where Chopra gained exposure on Oprah's

platform, leading to the sale of 400,000 copies of his infamous book. This example sheds light on how bullshit proliferates and gains popularity. The conclusion of the 2015 study explicitly emphasizes that bullshit sells, as evidenced by Chopra's substantial following of over 2.5 million on Twitter and his authorship of more than twenty New York Times bestsellers. Given the prevalence of such deceptive communication, it is imperative that we equip our students with critical thinking skills applicable to real-life situations. This will enable them to discern between profound statements and those devoid of truth and meaning. Chopra's case serves as just one instance, as a lack of meaningfulness is not limited to his discourse alone. It permeates various domains, including political rhetoric, marketing language, and even academia, as exemplified by Sokal's (2008) work.

By emphasizing the development of robust critical thinking skills, we can empower individuals to navigate and scrutinize the vast amount of information presented to them, distinguishing between genuine substance and empty rhetoric. This is an essential step towards fostering a society that values and upholds truth and meaningful communication.

Steven Pinker (2013) emphasizes the significance of clarity and intellectual rigor in both popular and academic writing in his Introduction to Language, Cognition, and Human Nature. Within this context, he refers to Helen Sword's Stylish Academic Writing (2012), which examines the literary style of five hundred academic articles and reveals that only a minority of them exhibit well-crafted writing. Similarly, Billig (2013) begins his book by expressing his discontent with the state of writing in the social sciences, stating, "This is a book which complains about poor writing in the social sciences" (2013:1). Billig's insightful and captivating book delves into two aspects: the working conditions of social science academics (including the expansion of higher education institutions, the increasing number of students and teachers, self-promotion, and competition among disciplines that result in narrower circles) and the linguistic characteristics of their work. The latter encompasses the prevalence of technical terminology over ordinary language, a noun-based writing style that involves reification and nominalization, and the extensive use of passive voice, among other linguistic tendencies. The combination of ever-narrowing academic specialization and the growth of higher education, accompanied by an escalating number of students and teachers, has led to the transformation of concrete actions into lofty abstractions. Consequently, academic prose has become incomprehensible and challenging to grasp. The utilization of multi-syllabled pompous language and obscurity in academic writing is, unfortunately, a product of extensive effort to conform to the practice. Even if one has little or nothing substantial to convey, the mastery of empty jargon is necessary to write and publish articles. As Billig aptly puts it, "Just like the learning of a foreign language, the acquisition of academic language occurs gradually over time" (ibid. 58).

A PROJECT AND A TEACHING METHOD AS VIABLE TRIGGERS OF CHANGE

The European Union established many programmes (Erasmus (1987-2006), Erasmus+ (2014-2020), Erasmus+ (2021-2027), Leonardo da Vinci (2007-2013, later part of Erasmus+)) in order to promote and support student, teacher and staff exchange, with the goal to enhance the quality of education, boost competences and skills or foster innovation in education. Students and teachers in these programmes are sometimes faced many challenges, namely, cost of living abroad can be economically inaccessible for many, quality of such experiences might not be consistent across different institutions and countries, there are considerable cultural and linguistic barriers, not to mention bureaucratic obstacles.

Recently, many HEIs embarked on a project connected with the so-called micro-credentials (MCs). MCs are short courses that should help learners reskill, upskill, or acquire new skills in different domains. According to a large body of literature (Brown and Mhichil, 2022, Futures, Andersen and Larsen 2020, Ralston, 2021, Woods and Woods, 2021) there is some potential of MCs for all stakeholders involved in HE (learners, educators, HEIs, employers and policy makers), with the main caveat being that the stakeholders are either not well informed about the concept or do not enthusiastically collaborate on its implementation. In our opinion, MCs have a potential to transform the HE sector by providing new pathways for lifelong learning and narrowing the skills gap. Even though some authors (Doran 2017, Maloney and Kim 2019) see MCs as yet another ill-fated education fad, we believe that MCs could become an innovative practice if full commitment of HEIs is guaranteed who should exhibit a pivotal role in establishing their proper implementation in close collaboration with other stakeholders.

Teachers in HEIs should embrace research-based teaching, not only because such practice leads to the joint acquisition of skills, knowledge and understanding of teachers and students, but also because it encourages problems solving, critical and creative thinking, collaboration, and often leads to improvements in communication skills and technology literacy. As pointed out above, we do not encourage the emphasis on research, on the contrary, we believe that teaching at universities should be the result of research practice of educators. Thus, research-based (or inquiry-based, research-led, research-oriented, research-informed) teaching when organized around research-based activities, rather than on the acquisition of subject content, leads to students becoming partners in learning and teaching. Meaningful research of teachers, when linked to the practice teaching, has huge potential to transform the higher education sector (Christersson et.al 2019, Holbrook and Devonshire, 2005, Hoddinott and Wuentherick 2006, Hood 2003, Griffiths 2004).

Research-based teaching and learning is also closer to active learning than any other teaching method, is more learner-centered (often, in the process, both teacher and students are learners), and increases the commitment and motivation of students during the learning activity.

CONCLUSION AND RECOMMENDATIONS

Higher education, despite numerous reforms implemented at all levels of education worldwide since the establishment of the University of Bologna in 1088, has seen relatively little substantive change. If we want to revitalize higher education, it is necessary to reaffirm the fundamental missions of universities: teaching and learning. A crucial aspect of this transformation involves reevaluating the prevailing emphasis on research over teaching when determining academic merit. While research undoubtedly holds value, we must recognize that teaching plays an equally important role in shaping the future of education. By ensuring that students receive a valuable education that equips them with the critical skills necessary to thrive in a dynamic and globalized world, we can promote accountability and enhance the long-term value of higher education.

In summary, the current state of higher education institutions necessitates a reimagining of traditional approaches. By embracing innovation, rebalancing the focus on teaching and research, implementing comprehensive reforms, and prioritizing the development of critical skills, we can navigate the evolving landscape of higher education and better prepare students for the challenges and opportunities that lie ahead.

For education systems to be economically viable, they must prioritize and invest in effective teaching practices, curriculum development, and interventions that address deficiencies in literacy and numeracy. This involves identifying struggling students early on, providing targeted support and interventions, and continuously evaluating and adjusting instructional approaches to ensure positive learning outcomes. By doing so, education systems can cultivate well-rounded individuals equipped with the necessary skills and knowledge to succeed personally, economically, and as active participants in society.

Agreement is widespread that change is imperative in the field of education. However, rectifying a long-standing and deeply troubled system is no easy task, despite the numerous reforms that educational institutions in Slovenia, at all levels, have undergone. Considering these challenges, it is essential for teachers to act. We must persist in implementing practices that we believe will benefit our students, such as providing specific and concise feedback that focuses on actionable steps towards improvement, thereby enabling them to attain their learning objectives. It is crucial to instill in our students the understanding that an engaged and active mind is a more effective one. Students should be encouraged to embrace the notion that their cognitive abilities are not fixed, but rather capable of growth and development. Regularly reviewing and reinforcing what they have learned is essential. As educators, it is our responsibility to remain attentive to our students' progress, identifying instances where assignments are not submitted, recognizing when they are unprepared for lessons, and providing support when they struggle to grasp certain concepts.

Both teachers and students often find themselves in a position where they must unlearn outdated practices imposed upon them by previous generations. This process necessitates questioning long-held assumptions, challenging established paradigms, and acquiring new knowledge and skills relevant to our professions, careers, and lives. Many of us may not possess extraordinary talents, but our thirst for knowledge and curiosity can be cultivated with effort. Maintaining a mindset of curiosity and intellectual hunger is vital, therefore, teachers must exert their utmost efforts to foster and preserve their students' inquisitive and open minds. In fact, the role of teachers extends far beyond imparting information. By creating a fulfilling and enjoyable learning experience, we can ensure that students not only acquire knowledge but also develop a genuine passion for learning. It is through such an approach that we can unleash their potential and instill a lifelong love for learning.

Regardless of your personal inclination towards dual-process theories of cognition, it is worth revisiting the insights of Kahneman, particularly when considering the undergraduate level of education. Perhaps, a greater emphasis should be placed on cultivating disciplined thinking, developing decision-making skills, understanding principles of probability and choice theory, and acquiring statistical knowledge. By doing so, students can learn how to approach problems in a systematic manner, avoiding hasty conclusions or impulsive judgments.

In the realm of education, it becomes increasingly evident that equipping students with the tools to think critically and methodically is of paramount importance. By emphasizing these skills within the undergraduate curriculum, we can empower students to navigate complex situations, assess information objectively, and make informed choices. Teaching disciplined thinking involves fostering an awareness of cognitive biases, encouraging an open-minded exploration of different perspectives, and cultivating the ability to analyze and evaluate evidence in a rigorous manner. Moreover, a solid foundation in principles of probability, choice theory, and statistics is crucial in a world inundated with (often false) information and data. By equipping students with the necessary knowledge and skills in these areas, we can enable them to make sound decisions, understand the uncertainties inherent in various contexts, and critically evaluate claims and arguments based on quantitative evidence.

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