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CHEMISTRY STUDENTS' BELIEFS, EDUCATIONAL EXPERIENCES AND PERCEPTIONS OF TEACHING AS A FUTURE PROFESSION: A CASE STUDY IN SERBIA

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Teaching is one of the most important professions. However, these days there is a significant decrease in enrolment in educational programs, especially in science disciplines such as chemistry, physics, and mathematics. For this reason, studying chemistry students' perspectives is valuable. This study examines the beliefs of 57 chemistry students in Serbia. Participants were asked about their experiences with chemistry experiments in schools, the unpopularity of chemistry, incentives for enrollment in chemistry studies, teachers' competencies, chemistry education subjects, and the advantages, disadvantages, and opinions of the teaching profession. The study employed a 20-question questionnaire, with participation being entirely voluntary and anonymous. The results show that a lack of laboratory exercises and the abstract nature of chemistry in primary and secondary schools contribute significantly to the subject's unpopularity. Enhancing the benefits of completing studies, such as increased salary and improved social standing, could encourage greater enrollment in chemistry education programs.

Keywords: chemistry education; students' attitudes; teachers' competencies

УВЕРУВАЊА, ОБРАЗОВНИ ИСКУСТВА И ПЕРЦЕПЦИИ НА СТУДЕНТИТЕ ПО ХЕМИЈА ЗА НАСТАВАТА КАКО ИДНА ПРОФЕСИЈА: ПРИКАЗ ОД СРБИЈА

Наставата е една од најважните професии. Сепак, денес има значително намалување на запишувањето во образовните програми, особено во научните дисциплини како што се хемијата, физиката и математиката. Поради тоа, проучувањето од перспектива на студентите по хемија е од голема важност. Оваа студија ги испитува ставовите на 57 студенти по хемија во Србија. Учесниците беа прашани за нивните искуства со хемиски експерименти во училиштата, непопуларноста на хемијата, поттикнувачките фактори за запишување на студии по хемија, компетенциите на наставниците, образовните предмети по хемија, како и предностите, недостатоците и мислењата за наставничката професија. Во студијата беше применет прашалник со 20 прашања, при што учеството беше целосно доброволно и анонимно. Резултатите покажуваат дека недостатокот на лабораториски вежби и апстрактната природа на хемијата во основните и средните училишта значително придонесуваат за непопуларноста на предметот. Зголемувањето на придобивките од завршувањето на студиите, како што се повисоки плати и подобрен општествен статус, би можело да поттикне поголемо запишување на студиите по хемија.

Клучни зборови: хемиско образование; ставови на студентите; компетенции на наставниците

1. INTRODUCTION

In today's rapidly changing society, students' beliefs, learning processes, and expectations have already evolved.[1] Educational systems are under increasing pressure to implement changes and enhance efficiency. However, introducing and implementing pedagogical changes poses significant challenges, especially when those tasked with implementation are not involved in initiating educa-

tional reforms.[2] The field of education has been extensively researched using various approaches to understand its complexities; its success relies on a combination of teachers' vocational and personal skills, competences, adherence to professional ethics and standards, and commitment to continuous professional growth. Recent educational reforms across different countries necessitate that teachers demonstrate ongoing competence and adaptability to evolving job demands. Alongside managing increased workloads with limited resources, educators are expected to achieve high outcomes in their professional endeavours.[3]

Education is the most powerful instrument for achieving prosperity in all of human society and is regarded as a powerful agency for driving change in all aspects of a nation. Teachers, who play a key role in shaping any education system, are at the heart of the process.[4]

Teachers are pillars not only of educational development but also of national progress.[4] Teachers are vital assets in society, serving as the core profession and the key agents of any change. Despite being perceived by some as occupying a lower hierarchy, teachers are highly organized and skilled professionals who play a crucial role in human development in every country during every period in history.[5] Moreover, teachers are the backbone and driving force of the entire process; an impact on teachers will impact the nation as a whole.[6]

In some countries, such as Finland, Singapore, Hong Kong, South Korea, Japan, Taiwan, and Indonesia, teachers are highly regarded, and enrolment in teacher education programs are extremely competitive. In these countries, teachers enjoy significant prestige and respect from society.[7]

Motivation also plays a crucial role in influencing students' career decisions, school involvement, and academic success in the education field. Recent research highlights the importance of preservice teachers' motivations and perceptions of teaching as crucial factors influencing career satisfaction and future professional commitment. However, there is a gap in understanding how these factors evolve throughout teacher education programs.[8]

The reasons for enrolling in education faculties can vary and often depend on gender. For male respondents, external factors such as salary, vacations, and promotions are important, while for female respondents, the predominant factor is love for children.[9] Yu et al. examined why satisfaction levels among participants decreased overall immediately after enrolling in a teacher education program.[8] According to Yu et al.[8], satisfaction levels among participants varied significantly; while some participants reported increased motivation and engagement, others experienced decreased satisfaction due to limited practical experience during the initial semesters. In China, for example, education faculty students typically engage in teaching subjects in the spring semester of their third academic year, following several semesters of theoretical courses with limited practice in classroom teaching.

Public perception of the teaching profession has started to change over the past decade. The media has increasingly portrayed teachers in a negative light, highlighting issues such as redundancy, flaws in the education system, and inadequate teacher training – particularly in areas like methodological competence.[10] Teachers are not paid adequately compared to other professions, contributing to students' negative attitudes toward the profession. Poor working conditions, overcrowded or poorly maintained classrooms, outdated equipment, lack of laboratories, and overloaded teaching schedules, further reduce the appeal of teaching. Many teachers feel embarrassed to identify themselves as teachers, leading to a widespread negative attitude of the teaching profession among students.[4]

This problem of declining enrollment in teaching colleges has not bypassed chemistry education faculties. Based on interviews with future chemistry teachers, it is clear that the limited job opportunities for graduates negatively affect the motivation and morale of candidates pursuing careers in chemistry education. Addressing the unemployment problem among chemistry teachers could enhance students' efficiency in their studies, boost morale and motivation, and foster a more positive attitude toward the profession.[11]

As part of the restructuring of educational faculties, the transformation of the chemistry curriculum into a 5-year program and the distribution of chemistry and education teaching courses by year have affected students' attitudes and motivation. According to Erol et al.,[12] the 3.5 + 1.5-year structure of educational faculty programs has reduced both motivation among chemistry teacher candidates and the efficiency of the educational process. In interviews, future chemistry teachers have stated that condensing school practical courses into three semesters has diminished their effectiveness. Therefore, Türkiye has replaced the 3.5 + 1.5 model with five-year teacher education programs.[11] In a similar way, since 2018, some universities in Serbia have adopted five-year integrated academic studies for chemistry teaching.

2. EXPERIMENTAL SECTION

2.1. *Research problem*

Many students avoid pursuing educational faculties as a career choice due to the declining prestige of the teaching profession. Several reasons contribute to the loss of respect for this once-respected and honored profession, including poor motivation among teachers and students, larger class sizes, influence of politics on educational systems, and the burden of seminars and additional teaching responsibilities. These challenges further frustrate the efforts of teachers to restore their profession's lost honor and respect in society.[5]

The decline in the number of enrolled students at faculties training future teachers in the Republic of Serbia began less than ten years ago. Numerous reasons explain this trend including lower salaries of teachers compared to the national average, poor acceptance of teachers in society, and lack of support from both the government and students themselves.

Building on the afore-mentioned context, and addressing the identified research gaps, this study seeks to explore the following research questions:

Q1: What are the key factors shaping chemistry students' perceptions of their prior education and laboratory experiences?

Q2: How do chemistry students perceive the advantages and challenges of the teaching profession?

Q3: What motivates students to choose chemistry education as a field of study?

These questions guide the research design and serve as a framework for analyzing the findings presented in this manuscript.

2.2. *Aim of the research*

Given the declining interest in chemistry education and the critical role of educators in influencing student motivation, it is essential to understand how students perceive their educational experiences and potential career pathways. This research aimed to explore the perspectives of undergraduate students in Chemistry at the Faculty of Sciences, Novi Sad, Serbia. It focused on their reflections on previous chemistry education in primary and secondary school, their general views on the chemistry teaching profession, and the factors that might motivate enrollment in chemistry education programs.

2.3. *Participants*

The sample group for this research was 57 students from the first to the fourth year of the BSc in Chemistry program (240 ECTS) at the Faculty of Sciences in Novi Sad. Participants entered the survey voluntarily. Students were informed that the questionnaire was anonymous and that the results would be used only for scientific purposes. They were not asked for any personal information, such as names or email addresses.

Students were provided with a link to the Google form to complete during one lecture of their obligatory courses. Out of the 120 students enrolled in the BSc in Chemistry program, approximately 50% of the students took part in the study. The research was conducted in March 2024, during the summer semester of the 2023/2024 academic year.

2.4. *Description of the methodology*

The research instrument was a Google questionnaire consisting of 20 questions, which were organized into several sections:

- Section 1: Basic information about students (Questions 1–5).
- Section 2: Students' experiences with chemistry experiments; Unpopularity of chemistry and incentives for enrollment in chemistry studies (Questions 6–11).
- Section 3: Information determining competencies and chemistry education subjects (Questions 12–15).
- Section 4: Advantages, disadvantages, and opinions about the teaching profession (16–20).

The types of questions included 15 single-answer questions and 5 multiple-choice questions. Both qualitative and quantitative analysis methods were employed for data analysis. The data obtained during the research were processed using Microsoft Excel software.

3. RESULTS AND DISCUSSION

The results of the questionnaire will be organized and presented according to its respective questions. The results will be displayed as a textual discussion, accompanied by "pie" or "bar" charts. Ultimately, the research questions will be addressed and answered based on the data obtained.

3.1. *Basic information about students*

This section contained five questions. The first question was on the students' year of study. The distribution was relatively even, with the highest percentage of students in their fourth year (28.1 %) and the lowest percentage in their first-year (22.8 %). Second- and third-year students represented 24.6 % of the total sample.

The second question addressed the gender of chemistry students, revealing that female students were predominantly represented in this field, comprising 84.2 % of the total sample. This finding aligns with previous research suggesting that modern society perceives teaching as a profession predominantly pursued by women.[5]

The third question examined where students had taken their enrollment exams. The vast majority (89.5 %) of participants took the exam at the Faculty of Sciences, while the remaining students had initially applied to the Faculty of Medicine but did not pass the enrollment exam. This outcome is not surprising, as both chemistry and biology are required subjects for the enrolment exams at the Faculty of Medicine.

Regarding enrollment at the Faculty of Sciences in Novi Sad, students can indicate two study program preferences when taking the entrance exam. They can choose between chemistry, biochemistry, environmental protection, quality control, and environmental management, in chemistry or integrated academic studies of chemistry teaching. If slots in their first-choice program are filled, students may enroll in their second-choice program, if space is available. The fourth question addressed whether students listed chemistry teaching as their second-choice program. A total of 15.8 % of students selected chemistry teaching as their second option. It is worth mentioning that only chemistry students were the subject of this study, as their program shares similarities with the chemistry teaching curriculum.

The fifth and last question in this section asked how students learned about the Faculty they intended to enroll in. According to the results, the institution's website was by far the most common source of information, significantly outweighing social media platforms. The results of the survey for this question are shown in Figure 1.

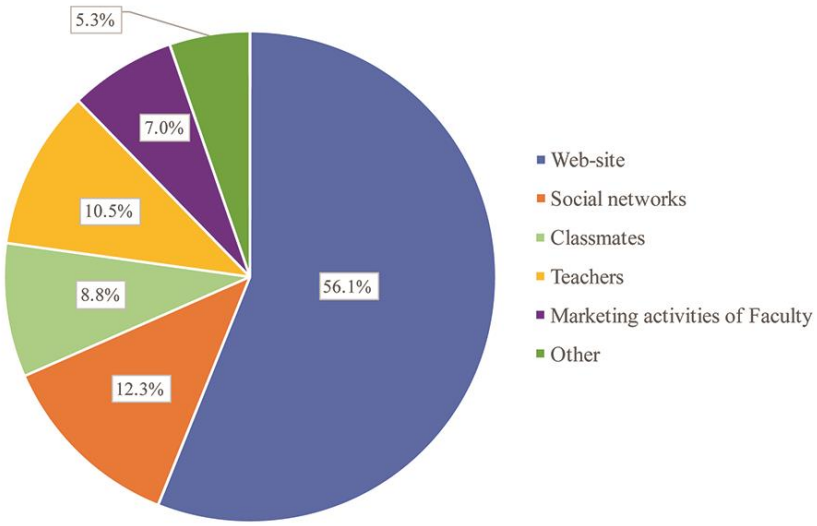

Fig. 1. Students' responses regarding their primary sources of information about studying at the Faculty of Sciences

3.2. *Students' experiences with chemistry experiments; Unpopularity of chemistry and incentives for enrollment in chemistry studies*

Section 2 of the questionnaire contained six questions. Questions 6 and 7 pertained to demonstration experiments conducted in primary and secondary schools, while Questions 8 and 9 focused on laboratory exercises intended for independent, practical student work during the designated laboratory sessions in the curriculum. As these topics are interrelated, these questions will be considered together.

The responses to Questions 6 and 7, which pertained to the demonstration experiments conducted by chemistry teachers, are shown in Figure 2.

The results shown in Figure 2 are concerning, as the most common answer to both questions is that the students did not see a single demonstration experiment. This finding is particularly alarm-

ing in the context of chemistry classes, where chemical experimentation is a fundamental method of acquiring knowledge.

The situation improved when students were asked about demonstration experiments in high school, with 28.1 % reporting participation in experimental exercises. This result is likely attributed to students who attended specialized high schools focused on chemistry. Similar results were obtained in Questions 8 and 9, as illustrated in Figure 3.

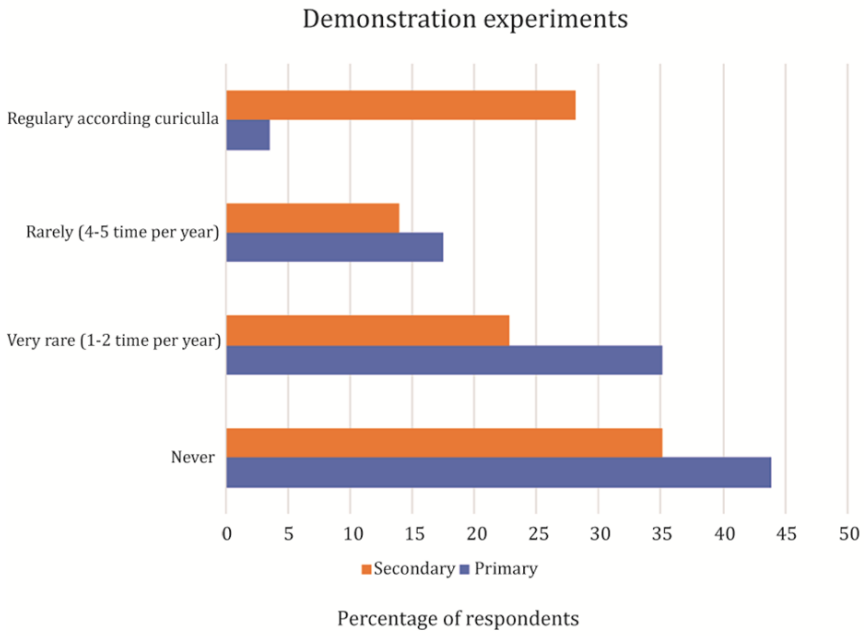

Fig. 2. Students' responses about demonstration experiments

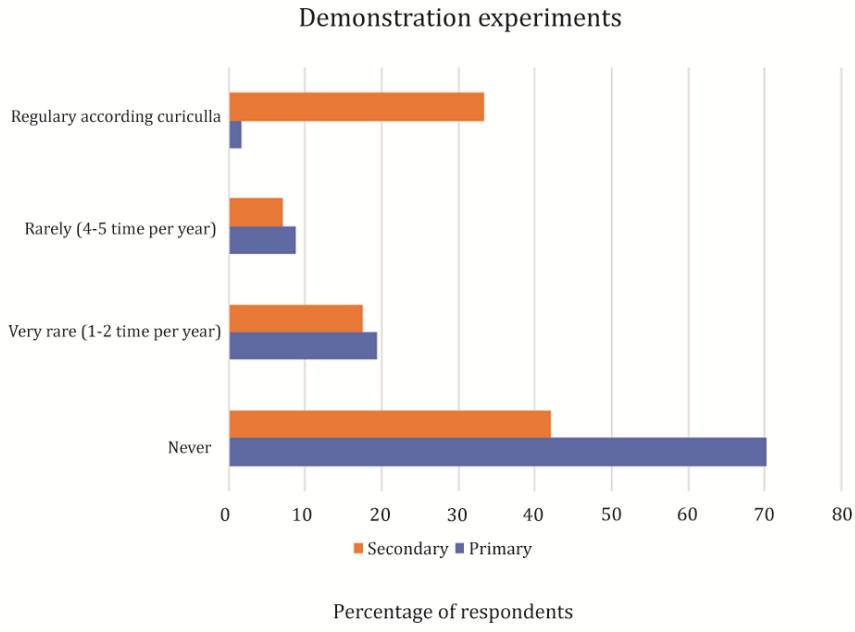

Fig. 3. Students' responses about laboratory exercises

When it comes to laboratory exercises in high school, the percentage of students participating is comparable to that of demonstration experiments. However, the most concerning data is related to laboratory exercises in primary school, where 70.2 % of students reported that they had not at-

tended a single class involving experimental exercises. This lack of laboratory exercises in the natural sciences is a significant factor contributing to students' declining interest in these fields.[13,14]

Laboratory exercises play a crucial role in fostering interest in the sciences. Global studies reveal that students from educational systems emphasizing experimental teaching exhibit greater interest in natural sciences.[13,14] This correlation underscores the importance of integrating practical experiments into curricula in order to increase student engagement and motivation. Laboratory exercises are a key factor in motivating students toward studying chemistry. In this study, 70.2 % of students reported that they did not perform any laboratory exercises in primary school, while 33.1 % participated in experimental exercises during high school. This disparity reflects a significant gap in hands-on learning opportunities, which adversely affects students' interest in studying chemistry. As highlighted in previous studies, engaging students in experimental teaching fosters a stronger connection to the subject.[13,14]

The lack of laboratory exercises was also the most frequent response to multiple-choice Question 10. In this question, students were asked to choose one of the answers to why chemistry is unpopular as a science and the reason why enrollment in faculties where chemistry is studied has declined. Students were able to answer some of the questions. The distribution of student responses is given in Figure 4.

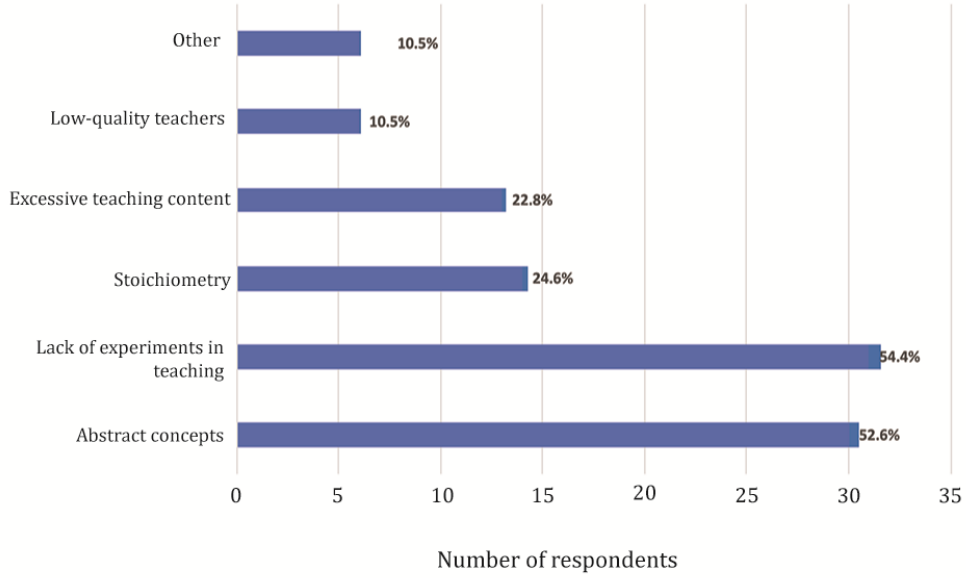

Fig. 4. Students' responses about the unpopularity of chemistry

In addition to the previously mentioned lack of laboratory exercises, the unpopularity of chemistry is compounded by its abstract nature. Chemistry is often perceived as an abstract science because it focuses on processes and entities within a microscopic world that cannot be directly observed. However, the use of the chemical triplet – connecting macroscopic, submicroscopic, and symbolic representations – can help reduce this perceived abstractness by providing more concrete connections for learners.[15]

While only 10.5 % student responses attributed the unpopularity of chemistry to low-quality teaching, this is a significant factor in the context of this research. The way teachers interact with their students and present course material plays a critical role in shaping students' attitudes toward teaching, and their future career paths. Teachers serve as role models, not only for students but also for their families and society as a whole.[16,17]

The final question in this section was aimed at answering the question of whether high school chemistry teachers encouraged respondents to choose chemistry education studies as a future profession. The distribution of student responses is shown in Figure 5.

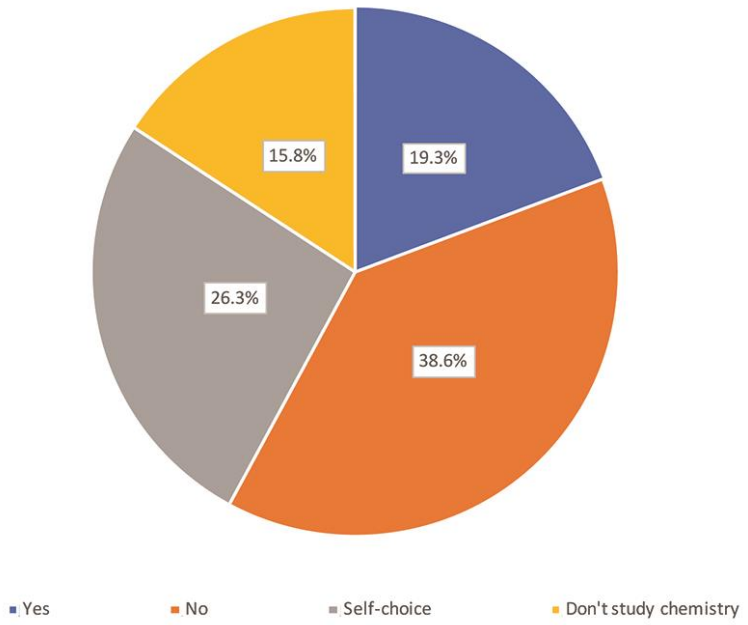

Fig. 5. Students' responses about recommendations of high school chemistry teachers on incentives to continue studying chemistry education

The majority of teachers (38.6 %) did not recommend studying chemistry education as a career path. Even more concerning is that 15.8 % of chemistry teachers actively discouraged students from studying chemistry education. Some of the reasons why chemistry teachers in Serbia do not like their job and are hesitant to recommend it have already been published.[18]

3.3. *Information about competencies and chemistry education subjects*

The third section of the questionnaire contained four questions related to the students' knowledge about the teaching profession and subjects within the chemistry education department. In response to the twelfth question, 64.9 % of respondents judged that they were aware of the competencies required for candidates who wants to be a chemistry teacher.

The thirteenth question explored whether students were familiar with the fact that the educational subjects consisting of Pedagogy, Psychology, Methods of Teaching Chemistry, and School Practice in Chemistry, collectively known as the PPM block, are obligatory subjects for a person who wants to be a chemistry teacher. A vast majority of respondents (77.2 %) indicated familiarity with this requirement.

The fourteenth question investigated whether students knew that PPM subjects are presented as elective courses in their curriculum. An overwhelming 91.2 % of students answered positively.

The fifteenth and final question asked whether the students had heard of didactic subjects offered as part of their studies by the Chair of Chemistry Education, who is responsible for the content of the PPM block. This question was multiple choice, and the results revealed that 45.6 % of respondents had taken the elective course Learning Chemistry – Methods and Techniques, which is offered during the fourth semester of the 8-semester program. However, one-third of respondents reported that they had never attended any courses taught by the Chair of Chemistry Education.

3.4. *Advantages, disadvantages, and opinions about the teaching profession*

The fourth and final section of the questionnaire focused on the opinions of students on incentives for young people to choose a teaching profession (Question 16), the advantages and disadvantages of the teaching profession (Questions 17 and 18), what reasons would be sufficient to motivate a student to become chemistry teachers (Question 19), and the financial expectations, specifically the salary that would be satisfactory for teachers in schools (Question 20). The first three questions were multiple-choice. The distribution of students' answers to question number 16 is presented in Figure 6.

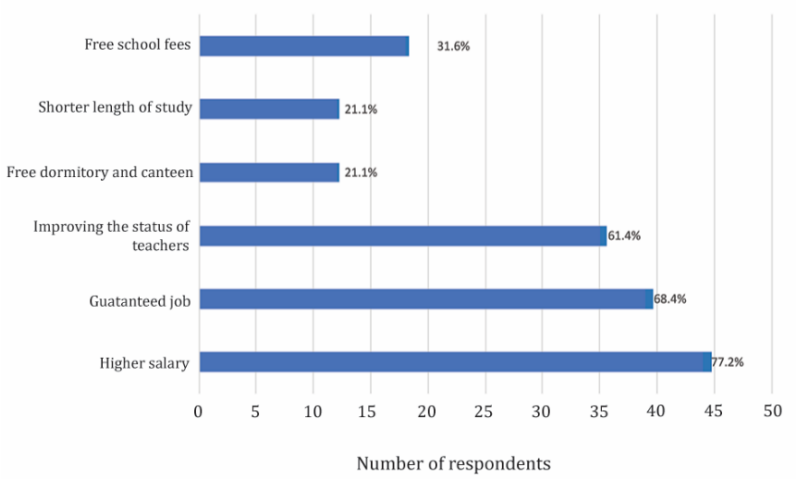

Fig. 6. Students' responses about incentives for enrolling in studies of chemistry education

As illustrated in the graph, the three most common answers highlight benefits that potential students would have after graduation: improving the status of teachers, guaranteed employment, and higher salaries. The lack of interest in teaching faculties and teaching as a career is an increasingly prevalent issue each year. According to Purdul and Mose, factors such as low pay, low workplace morale, favoritism among students, stagnation within workgroups, and nepotism contribute to individuals leaving or opting out of the teaching profession.[5]

Motivations for entering the teaching field are positively correlated with future professional engagement. Studies by Richardson and Watt[7,19] indicate that students are more likely to pursue teaching if they have a guaranteed future in the profession. Another study highlighted that financial benefits were the most dominant influential factor in students' decisions to become teachers, with nearly 50 % of the study participants responding positively.[16]

The distribution of student answers to Questions 17 and 18 is shown in Figure 7. Among the greatest advantages of teaching as a chemistry teacher, students point out vacations and working with children. The opportunity for extra free time provided by the teaching profession was also shown in the research of Charalambos,[20] where respondents noted this as a major benefit of this job. Regarding the advantages of the teaching profession, participants shared similar views with their Estonian colleagues, citing working with children and holidays as significant positives.[16,21] Chemistry teachers have a similar opinion, agreeing with chemistry students that working with children is the most rewarding aspect of the profession.[18]

On the other hand, several negative aspects of the teaching profession stood out, with three answers being the most frequent: low salary, lack of laboratory equipment, and poor reputation of teachers. Some students perceive the teaching profession as challenging and underpaid, requiring significant expertise and time. While these perceptions are widely reported in the literature, the present data primarily highlights salary dissatisfaction and low societal recognition as key factors making teaching less attractive.[8]

Money is the one of primary drivers of societal status.[22] In Estonia, low salary is the main negative aspect of the teaching profession.[16] Teaching has historically never been a high-paying job, but the low pay makes teaching much more difficult than it needs to be. Many teachers view salary as a critical factor influencing their decision to leave the profession, citing frustration with both pay and the work environment.[5] In addition, the status of teachers in society is very low. Teachers frequently express frustration about the lack of respect for their profession and insufficient compensation for the duties they are required to perform. Teaching is not only the most challenging job in schools but is also one of the toughest professions in the labor market.[2,4]

Teachers are often blamed by society for the lack of motivation of their students.[5,23] In addition to fulfilling practical demands and pressures of meeting students' needs, teachers must navigate the expectations of schools and parents.[19] Teaching is commonly viewed as a profession that attracts individuals who are hardworking but lacking in creativity and independence, while possessing a deep love for children.[5,24]

The nineteenth question addressed the conditions or societal changes that might encourage chemistry students to choose a career as a chemistry teacher. The distribution of student responses is given in Figure 8.

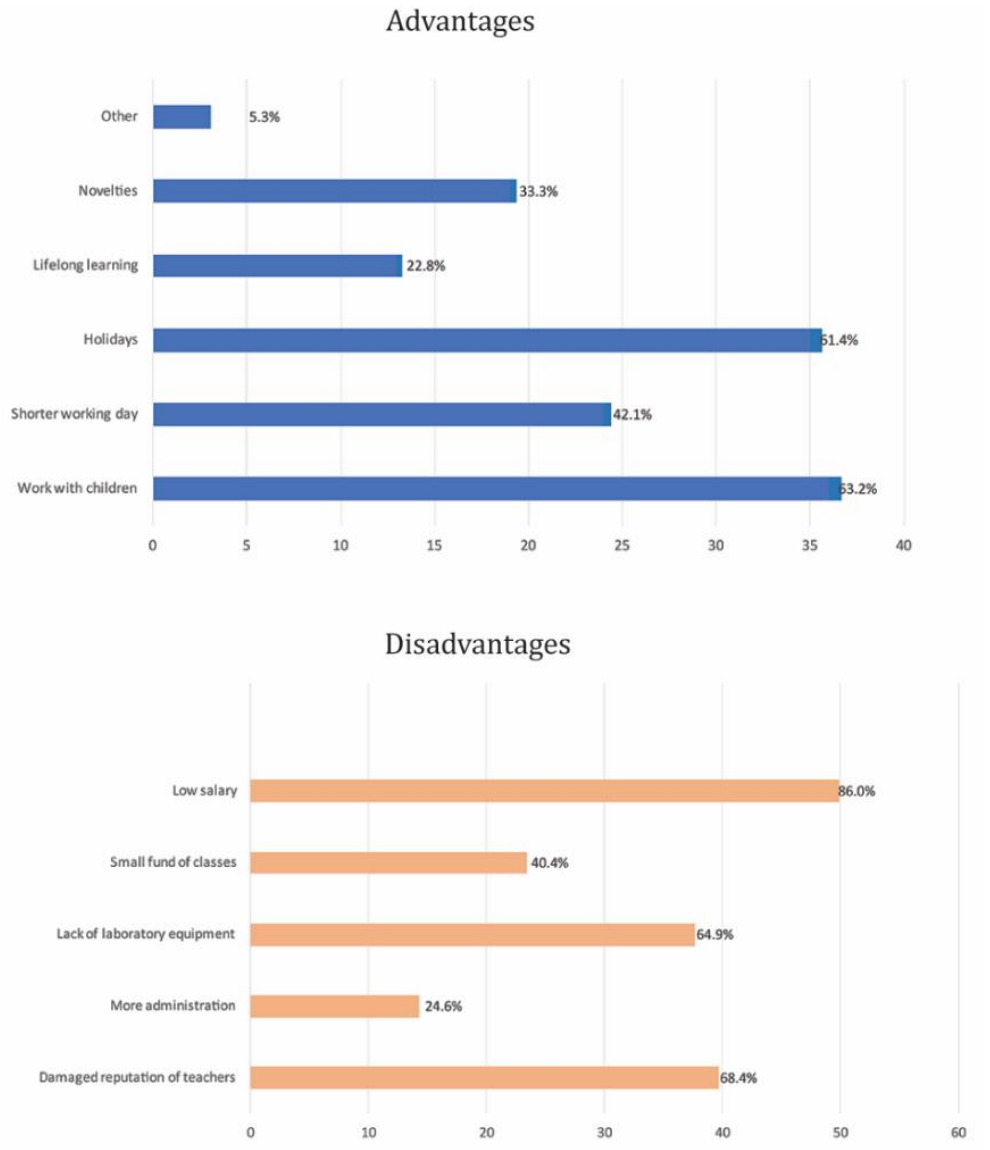

Fig. 7. Students' personal opinion on the advantages and disadvantages of the profession of chemistry teacher

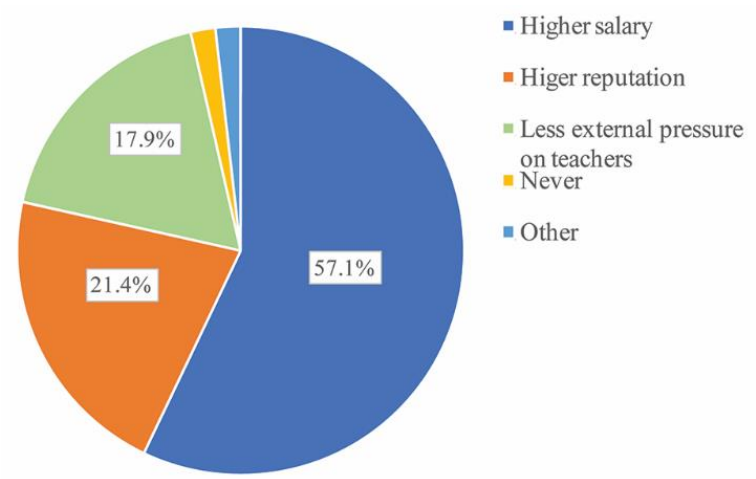

Fig. 8. Students' responses about the conditions or societal changes that might encourage chemistry students to choose a career as a chemistry teacher

Based on the responses, it is noted that financial benefit, specifically salary, are the most important factor for students today.[22] This negative shift in the social utility value of teaching suggests that the profession has become less socially appealing and less attractive to future candidates.[8] Students who are enrolling in their faculties want to build careers that are both respected and valued.[16]

The final question in the survey asked how much salary a chemistry teacher should earn. According to data from the Statistical Office of the Republic of Serbia, at the time of conducting this survey, the average national salary was 96,913 dinars per month (approximately 830 euros).[25] Meanwhile, the average salary for employees in education in the previous year was 91,246 dinars per month (approximately 780 euros).[26] It is clear that the salary in the education sector in the Republic of Serbia are below the national average. The distribution of student responses is given in Figure 9.

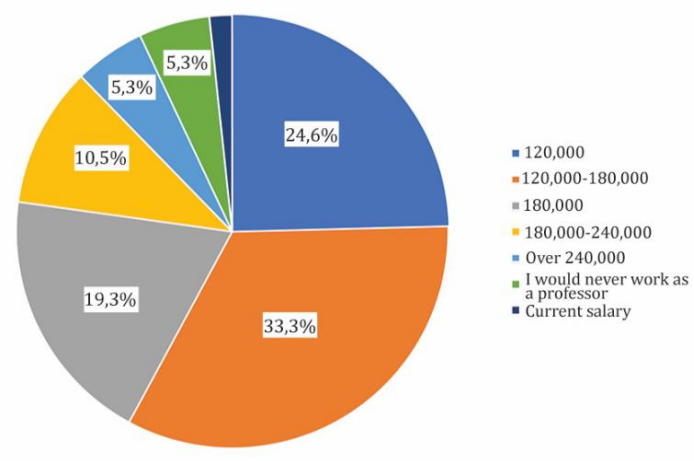

Fig. 9. Students' answers about the expected earnings in dinars of a chemistry teacher

The graph clearly shows that students expect a salary double the current amount. If the salary of a chemistry teacher were around 180,000 dinars (approximately 1,540 euros), as many as 77 % of the respondents in this study might consider enrolling in chemistry education programs.

The data further indicates that the lack of laboratory exercises in primary school (70.2 %) and limited exposure to chemical experiments in high school (28.1 %) are the key factors shaping chemistry students' perceptions of their prior education and laboratory experiences. These factors align with prior findings that emphasize the importance of practical experiences in developing student interest in science.[13] Moreover, abstract concepts in chemistry were identified as a challenge, with 35% of students citing this as a reason for the unpopularity of the subject. Addressing these issues by incorporating more practical exercises could significantly improve students' perceptions of chemistry education.

Students also identified several advantages and challenges associated with the teaching profession. Advantages included opportunities to work with children and flexible schedules, while challenges centered on low salaries and poor societal perception of teachers. These findings are consistent with literature highlighting financial incentives and societal respect as critical factors influencing career decisions in teaching.[9,19] Addressing these challenges through increased salaries and enhanced professional recognition could make the profession more attractive to future educators.

The findings suggest that students are motivated by both intrinsic and extrinsic factors. Intrinsic motivations include a passion for chemistry and a desire to inspire future generations, whereas extrinsic factors such as job stability and potential financial benefits also play a significant role. However, the data also reveals that many students perceive the teaching profession as undervalued, which discourages them from pursuing it. Targeted interventions, such as scholarships for chemistry education students and guaranteed employment opportunities, could enhance motivation and enrollment.

4. CONCLUSION AND IMPLICATIONS

The aim of this research was to gather insight from BSc students in Chemistry at the Faculty of Sciences, Novi Sad, Serbia, regarding their

opinions of previous chemistry education from primary and secondary school, their perspective on the chemistry teaching profession in general, and reasons that might lead them to pursue studies in chemistry education. A total of 57 students participated in the study, with representation from all four years of the program. Participation ranged from 22.8 % (first year) to 28.1 % (fourth year). The participants were predominantly female and took the enrollment exam at their home faculty and preferred study program. Approximately 16 % of students had chemistry education as an alternative study program, and most found information about study programs on the website of the Department.

Regarding chemical experiments, only 3.5 % of primary school teachers conducted demonstration chemical experiments, and regular laboratory exercises were performed by merely 1.7 % of primary school teachers. The situation appeared to improve in high school, as the data from this study indicates a higher frequency of laboratory exercises, particularly for students enrolled in educational institutions focused on chemistry. The study revealed that 15.8 % of students felt actively discouraged by their chemistry teachers from pursuing chemistry education as a teaching profession. Factors such as the lack of laboratory exercises and the abstract concept of chemistry were identified as contributing to the declining interest in chemistry education.

Students believed that they were aware of the requirements and subjects necessary to become chemistry teachers in primary and secondary schools. The benefits that would await students after graduation, such as improved career prospects, could potentially increase the number of students in chemistry education. Respondents also identified both advantages and disadvantages of pursuing a teaching career. Key advantages included the opportunity to work with children and flexible schedules, while disadvantages centered on low salaries and poor societal perception of teachers, as well as inadequate laboratory equipment in schools. Research has shown that financial incentives and societal respect significantly impact career choices in teaching. Increasing salaries was identified as the primary factor that would encourage chemistry students to pursue chemistry teaching, with an expected month salary of approximately 180,000 dinars (1,500 euros) for teaching roles.

The study's findings highlight the importance of increasing laboratory activities and improving teacher training programs. By addressing these areas, policymakers and educators can enhance the appeal of chemistry education and encourage students to consider teaching as a viable career path. Furthermore, improving teacher salaries and societal recognition are critical steps for fostering motivation and commitment among future educators.

These findings could have implications for understanding students' perceptions and attitudes towards the different aspects of the chemistry education profession and can serve to inform strategies to help future students develop positive perceptions and attitudes toward the teaching profession. This research could be a starting point for the development and implementation of strategic actions aimed at restoring trust in the teaching profession and highlighting the benefits that a student can gain by working in schools. Universities and government should provide theoretical justification, and scientific and methodical support to teachers. Steps such as implementing new technologies, introducing more practical exercises, increasing social prestige, and increasing salaries are steps that must be taken to restore students' faith in teachers and the education system as a whole.

The limitation of this study is the homogeneity of its participants, as all respondents were enrolled at a single faculty/university. To confirm these results or identify new trends, the participants from several universities across Serbia could be included. The restricted sample limits the generalizability of the findings to other contexts. However, this research does offer valuable insights into the perceptions and attitudes of chemistry students in Serbia toward their education and prospective teaching careers. Finally, the lack of longitudinal data prevents tracking changes in students' perceptions over time, which could provide a more dynamic understanding of their attitudes and motivations. Future studies should explore these dynamics in broader contexts and consider cross-disciplinary comparisons to deepen our understanding of student motivation and career decisions.

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