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Investigating Factors Responsible For Low Chemistry Enrollment: A Case Study University Of Ibadan-Okene Study Centre.

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ABSTRACT: The role of chemistry in the promotion of national development cannot be overemphasized, consequently there is need to put in place all measures to sustain the acquisition of knowledge such as the number of student's subscription. This study explores the factors influencing the low enrollment of students in chemistry education at tertiary institutions, focusing on the Federal College of Education Okene, in affiliation with the University of Ibadan. The study utilized an opinion survey research design and descriptive research method to systematically investigate the factors influencing chemistry enrollment. The validated questionnaire shows a reliability coefficient of 0.87, using descriptive research methods for data analysis. The population consisted of 120 students, with 40 from the chemistry department and 80 from the biology department selected randomly. A quantitative research approach was employed for data analysis, using the statistical tools of frequency, percentage, mean, and a significance test to make decisions based on the research questions posed. The study signifies challenges in student enrollment and suggests interventions to improve the attractiveness and effectiveness of chemistry education programs.

Keywords: Chemistry enrollment, Tertiary education, Factors influencing enrollment, and Educational development

INTRODUCTION

Science is the study natural phenomena in our environment for the survival of living beings. It is described as a process employed in determining the facts, principles and laws governing natural phenomen(Okoli et al., 2013). The process of finding solutions to series of problems in ensuring national development have been attributed to scientific knowledge(Nwachukwu, 2012).

Scientific knowledge generally exists in three (3) major forms. they are;

1. Life science such as botany, biology, etc
2. Earth science such as geography
3. Physical science such as physics, chemistry, etc(Omorogbe & Ewansiha, 2013).

Etesike and Nnamini (2006), quoting Ukungwu (2003), defined chemistry as a branch of physical science that studies the composition, structure, properties and changes which matter

undergo(Etesike & Nnamini, 2006; Ukungwu, 2003). Chemistry is chiefly concerned with atoms and molecules and their interactions and transformations. The knowledge of chemistry is essential in the production of items like plastics, detergents, pesticides, motor vehicles, fertilizers, clothing fibers, cosmetics, drugs, chemical solvents etc. There are many chemistry related courses such as engineering, biochemistry, food processing, pharmacy, space science, medicine etc.

Maduewusi (2013), opines that chemistry has been identified to be one of the important subjects needed for the sustenance and transformation of the national economy and hence should be accorded adequate attention(Kirt, 2000; Maduewusi, 2013). Despite the fact that many benefits have been attributed to the knowledge of chemistry for human sustainability, the number of students studying the subject at tertiary institutions is not encouraging(Issac & Micheal, 2015). Evidence for the decline in students' enrollment in chemistry is the data obtained from the admission office of Federal College of Education in affiliation with University of Ibadan on the number of admitted students between 2012 – 2022 in biology and chemistry departments.

It can be observed from Table 1, that unlike biology department, enrollment in chemistry has been dwindling over the years even though they are both science courses.

Table 1: Showing the number of students admitted between 2012- 2022 in Biology and Chemistry departments

Session	Chemistry	Biology
2012/2013	13	18
2013/2014	7	23
2014/2015	5	18
2015/2016	11	26
2016/2017	18	27
2017/2018	14	22
2018/2019	16	33
2019/2020	7	17
2020/2021	19	19
2021/2022	10	12

Source: Admission Office Federal College of Education, Okene (2022)

Listed some factors which account for low enrollment in chemistry education, one of which is students' perception on the subject matter which they strongly believe is diverse, calculative and brainstorming(Onwuka, 2012). He went further to state that students' low enrollment in chemistry education should be traced back to secondary schools where the foundation is laid. Chemistry teachers and laboratory facilities are lacking in many schools(Emmanuel, 2013).

Ugwu (2014), states that peer group have a great influence on students' choice of chemistry career. He explained that most people enroll in other courses as a result of the kind of friends they keep who prefer other courses which they regard as being simpler compared to chemistry(Ugwu, 2014). Ali (2006), opines that parents attitude helps to condition children attitude(Ali, 2006). Okon (2012), reported that a child whose parents have positive attitude toward chemistry will also be

influenced by his parents' attitude(Okon, 2012). Onwuka (2012), opines that gender disparity affect students' enrollment in chemistry. He went further to say that poor background enrollment in tertiary institution.

Ugwu (2014), states that the most important factor leading to low enrollment of students in chemistry education is the social value accorded to chemistry education. He stated that teachers are not accorded value in the society and such negative value transcends to the growing generation thereby developing a big negative side toward chemistry education. From the discussions so far, it is obvious that enrollment in chemistry has consistently been comparatively low. This ugly trend needs urgent attention. Hence the need to survey the factors responsible for low enrollment of students in chemistry in tertiary institutions(Ugwuoke, 2016).

Statement of the Problem

In the quest for finding a solution to the problem of the under development of Nigeria as characterized by shortage of scientists and technologist, researchers have emphasized the decreasing number of students studying sciences across all institutions of learning especially in chemistry which is considered to be the bedrock of development of a country(Azmat, 2013).

Could this low enrollment be as a result of parental influence, poor background knowledge, peer group influence, environmental influence, and negative perception of chemistry? It is on this atmosphere that this research is being carried out to determine and address the factors that are responsible for low enrollment of students in chemistry education in tertiary institutions.

Purpose of the Study

The primary purpose of this quantitative study is to examine the various factors contributing to the low enrollment of students in chemistry education at the University of Ibadan, in affiliation with the Federal College of Education, Okene. The analysis tool employed for this study consisted of a researcher-designed questionnaire, and the data analysis was conducted using descriptive statistical methods, specifically frequency counts and means.

The study aims at finding out;

1. The effect of peer group influence on students' enrollment in chemistry education.
2. Whether students' perception of chemistry influence their enrollment in chemistry education.
3. The effect of peer group influence on student's enrollment in chemistry education.
4. If the background knowledge of student in chemistry affects their enrollment in chemistry education
5. If the hazard affects student's enrollment in chemistry education

Research Questions

1. To what extent does peer group influence impact the enrollment of students in chemistry education?

2. How does students' perception of the difficulty of chemistry influence their decision to enroll in chemistry education?
3. To what degree does parental influence affect students' enrollment in chemistry education?
4. How does the background knowledge of students in chemistry impact their decision to enroll in chemistry education?
5. What is the relationship between the perceived hazards associated with chemistry and the enrollment of students in chemistry education?

Significance of the Study

The study will be very useful to;

1. Students contemplating on whether to take chemistry as a career choice or not.
2. Guidance counsellors and parents in directing their wards to make the right choice of career.
3. Guidance to the Federal College of Education Management on steps to take in ensuring adequate enrollment counsellors and parents in directing their wards to make the right choice of career.
4. The government to encourage them equips the laboratories to help achieve educational objectives.
5. Boost other research efforts towards making the study of chemistry more effective.

Scope and Delimitation of the Study

This research is limited to two departments' i.e Biology and Chemistry in Federal College of Education Okene, in affiliation with University of Ibadan. This area of study will be used to predict the factors responsible for the low enrollment of students in chemistry.

Operational Definition of Terms

1. Assessment : To determine or estimate the value of something
2. Attitude : A mental state involving feelings and disposition to act in certain ways
3. Biology : Science that studies living organisms
4. Otany : The study of plants
5. Career : The particular occupation for which you are trained.
6. Chemistry : A science subject that studies matter, its properties, composition, applications and uses
7. Enrollment : To register or become a member of school or department
8. Hazards : A source of danger
9. Knowledge : The result of learning and reasoning
10. Perception : Basic component in the formation of a concept.
11. Underdevelopment : State of inadequate development

Conceptual Literature Review

The literature review for this quantitative research delves into various factors influencing the low enrollment of students in chemistry education. These factors include parental and peer group

influences, students' perception of chemistry, hazards associated with the subject, and the impact of background knowledge. These dimensions are explored through specific indicators related to how these factors affect students' decisions to enroll in chemistry education.

Peer Group Influence

Dimension : Influence of Peers on Enrollment
Indicators : Peer conversations about chemistry, peer opinions affecting enrollment decisions

The peer group influence is worse than an addiction, too strong to overcome. Apart from family members, friends are the next in line of most influential people. Given friends and peers active roles, educators have designed peer programs in counseling which is based on the evidence that students sometimes hesitate to talk to counselors and teachers(Whiston & Keller, 2004).

Udoh Agboola and Eibhalemen (2020), explained that it is impossible to go against a peer group whose cardinal rules seem to be in "conformity to rejection", to go against the rules of the peer is regarded as an "outcast or Non-member". This can be likely factor capable to result in low enrollment in chemistry.

Parental Influence

Dimension : Parental Impact on Enrollment
Indicators : Influence of parents on enrollment decisions, discussion of chemistry with parents.

Parents play a key role in their children career development and decision making(Hughey, 2005). They can facilitate the process in different ways such as serving as sources of information about the world of education and work and helping them learn about their interests and capabilities (Brown, 2003). Notes that parental influence is an "intentional, planned and goal directed action" and their role is superior to that of teachers and counsellors (Yong, 1994).

Otto (1989), states "even if the school had the resources with which to meet young people career guidance needs, neither teachers nor counselors can replace the influence parents have on their sons and daughters career plan(Otto, 1989). Whiston and Keller (2004) opine that the greatest influence among the factors responsible for low enrollment is that of parental influence. In education and learning generally, it is observed the students learn better when their interest and opinion about what they learn is respected.

Background Knowledge

Dimension : Role of Background Knowledge
Indicators : Level of background knowledge in chemistry, perception of how background knowledge affects enrollment
According to Osborn and Collins (2001), students do not find chemistry related to their real world. This could be as a result of the early experience they had with teachers that did not simplify the concept by using familiar instructional materials(Osborne & J., 2001). This could deter students

from picking interest and so they assume they are not qualified to study chemistry in higher institution.

There are students who at the foundation level were not exposed to adequate background knowledge in chemistry either due to lack of qualified teachers, adequate facilities etc. Opined that low enrollment in chemistry education is due to a mirage and poor background knowledge of students at the secondary school level(Bojuwoje, 2003; Kalu, 2014).

Perception of Chemistry

Dimension **:** Student Perception of Chemistry
Indicators **:** Students' views on the difficulty of chemistry, relevance of chemistry to future career choices
Many students have very limited access to chemists in the professional world, this gives them a limited view of which position is available to a graduate of chemistry. Often time students perceive that being two major pathways with a degree in chemistry; academia or industry, this perception fails to address the wide range of career within these categories as well as fail to identify other career areas that may be open to graduates of chemistry(Solano et al., 2011).

Some students view chemistry as difficult so they assume that the concepts in chemistry are abstract in nature and as such, cannot be easily assimilated. This reason makes them shy away from chemistry as a course of learning. According to Osborn and Collins (2001), students find chemistry difficult and unrelated to their real world. Sometimes students hear others comment on finding the subject difficult to learn, without themselves experiencing it, they jump to conclusion based on this perception.

The learning of chemistry is associated with hazards some of which are toxic and life threatening. Chemistry is seen as a career for the brave and the feeble minded often stay away.

Hazards in Chemistry Education

Dimension **:** Perceived Hazards of Chemistry
Indicators **:** Perception of chemistry as a hazardous subject, influence of hazards on enrollment decisions
The exposure to some chemical practical reagents and apparatus such as concentrated acids like HCl, H2SO4, concentrated bases like NaOH, KOH etc. glasswares, gases, explosive metals like sodium etc can be very harmful when they come in contact with the human body if not properly handled. This leads to laboratory accidents like thermal and chemical burns, explosion, fire outbreak, cuts to the skin, inhalation of poisons, gases, eye injuries, radioactive hazards and lots more, this is one of the reasons many students stay away from chemistry. Woldemanue, Atagana and Engda (2014), opined that what makes the learning of chemistry difficult is due to the hazards associated with it(Atagana & Engida, 2014; Woldeamanuel et al., 2014).

Empirical Review

Yusuf Nusirat Bolanle and Ayodele Michael Olu (2018), conducted research on the perception of college of education students on factors causing low enrollment of students in chemistry education(Yusuf & M.O, 2018). The findings from the research showed that college of education students' perception of factors causing low enrollment in learning of chemistry can be categorized into 3 which are: nature of chemistry, negative attitude of students to the learning of chemistry and teacher – related factors were perceived as causes of low enrollment in chemistry education based on questionnaires respondents(Aina & Adedo, 2013).

Abbey, K.I and Nduudee, J.N. (2022). Factors responsible for low enrollment of students in chemistry as perceived by chemistry education students in Ignatius Ajuru University of Education, Port Harcourt, River state, Nigeria(Abbey & Nduudee, 2022). The findings from the research showed that some of the causes of low enrollment of students in chemistry as observed by students offering chemistry in Ignatus Ajuru University of Education include Parental and peer group influences, abstractness of some chemistry concepts, students background knowledge and fear of the hazards associated with chemical substances.

Jennifer, M.S. (2020). An analysis of the factors influencing chemistry students' choice of major and career(Jennifer, 2020). The findings revealed that some of the factors influencing the choice of chemistry students are: high school experience, family members, versatility, self-efficacy, career options/ jobs available.

Theoretical Framework:

Two main theoretical frameworks underpin the analysis of these factors:

1. **Expectancy Value Theory** : Emphasizing individual beliefs and motivations influencing student enrollment decisions based on expectations of success and perceived value of education paths. This theory emphasizes the role of individual beliefs & motivations in student enrollment. It suggests that students consider their expectations of success and the perceived value of a particular educational path when making enrollment decisions. Factors such as self – efficacy, perceived relevance and personal interests influence their choices. This theory was proposed by martin fishbein and Icek Ajaen in late 1960s and early 1970s.
2. **Relational Choice Theory** : Suggesting rational evaluation of costs and benefits associated with educational options, incorporating factors like tuition fees, location, program quality, career prospects, and personal preferences into enrollment decisions. These theoretical frameworks provide a robust foundation for understanding the complex dynamics influencing students' enrollment choices in chemistry education.

According to this theory, students make enrollment decisions based on rational evaluation of the cost and the benefit associated with different educational options. Factors such as tuition fees, location, program quality, career prospects and personal preference are weighted to decide. This theory was propounded prominently by an American economist and noble laureate; Gary Becker.

METHOD

The research methodology employed in this study focused on assessing the factors contributing to the low enrollment of students in chemistry at the University of Ibadan in affiliation with the Federal College of Education in Okene. The study utilized an opinion survey research design and descriptive research method to systematically investigate the factors influencing chemistry enrollment. The population comprised chemistry and biology students at the Federal College of Education in affiliation with the University of Ibadan, with a sample of 120 students randomly selected from the two departments. Data analysis employed the statistical tools of frequency, percentage, mean, and a significance test to make decisions based on the research questions posed. The approach used in this chapter is structured around the following key components:

Research Design

An opinion survey research design, a type of descriptive research method, was adopted for this study. Descriptive research methods systematically describe a situation or area of interest factually and accurately. The survey design involved collecting and analyzing data from a representative group of students to gain insights into the factors influencing low enrollment in chemistry education.

Population of the Study

The study population included chemistry and biology students at Federal College of Education in affiliation with the University of Ibadan. A total of 120 students were randomly selected from these departments to participate in the study.

Instrument for Data Collection

A researcher-designed questionnaire titled "Investigating the Factors Responsible for Low Enrollment of Students in Chemistry" was utilized for data collection. The questionnaire consisted of two sections: one focusing on demographic data of the students and the other containing 20 items related to the research questions.

Data Validation and Reliability

Face and content validity testing were conducted by the researcher and two experts in the Chemistry department at Obafemi Awolowo University to ensure the questionnaire's appropriateness. The reliability coefficient was estimated using Cronbach's alpha, revealing a high level of consistency with a value of $r=0.87$.

Method of Data Collection

Upon obtaining permission from the respondents, the questionnaire was administered to the selected students. A total of 120 questionnaires were distributed, ensuring an adequate sample size for subsequent analysis.

Method of Data Analysis

Frequency counts and mean values were employed to interpret the data collected from the questionnaire responses. The use of a 5-point Likert scale in the questionnaire facilitated the

analysis, with a mean rating of 3.0 serving as the benchmark for accepting or rejecting each item based on the responses received.

These methodological approaches helped in systematically examining the factors influencing low enrollment of students in chemistry education at the Federal College of Education in affiliation with the University of Ibadan. A total of 120 questionnaire were used for the analysis. Each questionnaire contains 20 questions item grouped based on the relevance and relatedness to each of the research question under examination. Frequency and mean were used for the data analysis. The data's obtained were presented and analyzed according to research question formulated.

Data Analysis And Presentation

To determine the significance in the data analysis and presentation, the researchers in the study used a 5-point Likert scale in the questionnaire format. The Likert scale included the following options: Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), and Strongly Disagree (SD).

Each respondent could indicate their opinion on each question by selecting one of these options on the Likert scale. The mean values derived from the responses on the Likert scale were used to make decisions based on the research questions posed in the study. A mean rating of 3.0 was used as the benchmark for accepting or rejecting each item. If the mean value was below 3.0, the item was rejected, and if it was 3.0 and above, the item was accepted as significant.

Research question 1

To what extent does peer group influence impact the enrollment of students in chemistry education?

Table 2

S/N	ITEMS		F	X	FX	$\bar{X}$	DECISION
1	Have your peers ever influenced your decision to enroll in chemistry education?	SA	60	5	300	**3.58**	**Accepted**
		A	15	4	60		
		N	10	3	30		
		D	5	2	10		
		SD	30	1	30		
			120		430		
2	How often do you discuss chemistry with your peers	SA	25	5	125		
		A	45	4	180		
		N	10	3	30	**3.25**	**Accepted**
		D	15	2	30		
		SD	25	1	25		
			120		430		
3	How much do your peer option matter when making decisions about enrolling in chemistry	SA	20	5	100		
		A	20	4	80		
		N	10	3	30	**2.66**	**Rejected**
		D	40	2	80		
		SD	30	1	30		
			120		320		

4	Have you ever enrolled in chemistry as a result of peer pressure	SA	40	5	200	**3.25**	**Accepted**
		A	25	4	100		
		N	0	3	0		
		D	35	2	70		
		SD	20	1	20		
			120		390		
		Grand	$\bar{x}$	=	**3.19**		

Analysis of the result of table 2 reveal that student peers greatly influence their decision to enroll in chemistry students discuss chemistry with their peers often. Peer pressure causes student to enroll in chemistry even though their peers' opinion. In their decision to enroll in chemistry doesn't matter much. Thus, finding shows that peer groups influence affect students' enrollment in chemistry. Table 2 shows that us of 4 peer group item 3 agreed. The grand mean of 3.19 also measured up to the criterion mean of 3.0. Therefore, peer group influence affect student's enrollment in chemistry.

Research Question 2

How does students' perception of the difficulty of chemistry influence their decision to enroll in chemistry education?

Table 3

S/N	ITEMS		F	X	FX	$\bar{X}$	DECISION
5	Do you perceive chemistry as a difficult subject?	SA	40	5	200	**3.33**	**Accepted**
		A	20	4	80		
		N	20	3	60		
		D	20	2	40		
		SD	20	1	20		
			120		400		
6	Do you think chemistry is relevant for your future career	SA	40	5	200		
		A	35	4	140	**3.5**	**Accepted**
		N	15	3	45		
		D	5	2	10		
		SD	25	1	25		
			120		420		
7	Have you ever been discouraged from enrolling in chemistry because of negative perception about the subject	SA	10	5	50		
		A	15	4	60	**2.42**	**Rejected**
		N	20	3	60		
		D	45	2	90		
		SD	30	1	30		
			120		290		
8	How much does your perception of chemistry affect your decision to enroll in chemistry	SA	70	5	350		
		A	20	4	80		
		N	0	3	0	**3.92**	**Accepted**
		D	10	2	20		
		SD	20	1	20		
			120		470		
		Grand	$\bar{x}$	**=**	**3.29**		

Analysis of result of table 3 reveal that student perceive chemistry as a difficulty subject, students are discouraged from enrolling in chemistry due to this negative perception, students agree that chemistry is relevant to their future career but this perception affect their decision leading to low level of enrollment in chemistry. Table 3 shows that out of 4 students' perception items, 3 agree. The grand mean of 3.29 also measured up to the criterion mean of 3.0. Therefore, students' perception about the subject affects their enrollment in chemistry.

Research question 3

To what degree does parental influence affect students' enrollment in chemistry education?

Table 4

S/N	ITEMS		F	X	FX	$\bar{X}$	DECISION
9	Have your parents ever influenced your decision to enroll in chemistry?	SA	25	5	125	**3.0**	**Accepted**
		A	35	4	140		
		N	0	3	0		
		D	35	2	70		
		SD	25	1	25		
			120		360		
10	How often do you discuss chemistry with your parent	SA	50	5	250		
		A	20	4	80	**3.42**	**Accepted**
		N	0	3	0		
		D	30	2	60		
		SD	20	1	20		
			120		410		
11	How much do your parents opinion matter when making decisions about enrolling in chemistry	SA	30	5	150		
		A	40	4	160	**3.33**	**Accepted**
		N	10	3	30		
		D	20	2	40		
		SD	20	1	20		
			120		400		
12	Have you ever enrolled in chemistry because of parental pressure	SA	15	5	75		
		A	45	4	180	**3.17**	**Accepted**
		N	10	3	30		
		D	35	2	70		
		SD	15	1	15		
			120		390		
		Grand	$\bar{x}$	=	**3.23**		

Analyzing the effect of parental influence of student's enrolment in chemistry, results show that students discuss chemistry with their parents, that parents opinion matter in making decision and that parent sometimes pressure them to take chemistry serious. Table 4 shows that out of 4 parental influence items, all agree. The grand mean of 3.23 also measured up to the criterion mean of 3.0. Therefore, parental influence affects students' enrollment in chemistry.

Research Question 4

How does the background knowledge of students in chemistry impact their decision to enroll in chemistry education?

Table 5

S/N	ITEMS		F	X	FX	$\bar{X}$	DECISION
13	How much background knowledge do you have in chemistry before enrolling in chemistry	SA	40	5	20	**3.33**	**Accepted**
		A	30	4	120		
		N	0	3	0		
		D	30	2	60		
		SD	20	1	80		
			120		400		
14	Do you think having background knowledge about chemistry affected your decision to enroll in chemistry	SA	30	5	150		
		A	40	4	160	**3.33**	**Accepted**
		N	10	3	30		
		D	20	2	40		
		SD	20	1	20		
			120		400		
15	Have you ever been discouraged from enrolling in chemistry education because of lack of poor knowledge about the subject	SA	60	5	200		
		A	30	4	120	**3.0**	**Accepted**
		N	0	3	0		
		D	10	2	20		
		SD	20	1	20		
			120		360		
16	How much does your background knowledge affect your decision to enroll in chemistry	SA	70	5	350		
		A	35	4	140	**4.33**	**Accepted**
		N	0	3	0		
		D	15	2	30		
		SD	0	1	0		
			120		520		
		Grand	$\bar{x}$	=	**3.50**		

In terms of the influence background knowledge on student's enrollment in chemistry, the analysis indicate that student enroll in chemistry when they have solid background knowledge, students are usually from enrolling when they lack adequate background knowledge and that background knowledge have a strong influence in students' decision to enroll in chemistry. Table 5 shows that out of 4 background knowledge items, all agree. The grand mean of 3.50 also measured up to the criterion mean of 3.0. Therefore, Background knowledge affects students' enrollment in chemistry.

Research Question 5

What is the relationship between the perceived hazards associated with chemistry and the enrollment of students in chemistry education?

Table 6

S/N	ITEMS		F	X	FX	$\bar{X}$	DECISION
17	Do you perceive chemistry as a hazardous subject	SA	50	5	250	**3.92**	**Accepted**
		A	40	4	160		
		N	0	3	0		
		D	30	2	60		
		SD	0	1	0		
			120		470		
18	Have you ever been discouraged from enrolling in chemistry because of the hazards associated with the subject	SA	60	5	300		
		A	40	4	160	**4.25**	**Accepted**
		N	10	3	30		
		D	10	2	20		
		SD	0	1	0		
			120		510		
19	How does your perception of hazards associated with chemistry affect your decision to enroll in chemistry	SA	40	5	200		
		A	50	4	200	**3.92**	**Accepted**
		N	10	3	30		
		D	20	2	40		
		SD	0	1	0		
			120		470		
20	Have you ever enrolled in chemistry despite perceived hazards associated with the subject	SA	60	5	300		
		A	40	4	160	**4.17**	**Accepted**
		N	0	3	0		
		D	20	2	40		
		SD	0	1	0		
			120		500		
		Grand	$\bar{x}$	=	**4.10**		

In the case of hazards involved, analysis of results showed that student perceive chemistry as a hazardous subject either due to lab practical or exposure to dangerous chemicals and that fear of being affected by these hazards discourage them from enrolling In chemistry. Table 6 shows that out of 4 hazard items, all agree. The grand mean of 4.10 measured up to the criterion mean of 3.0. Therefore, Hazards involved in chemistry affects students" enrollment in chemistry.

RESULT AND DISCUSSION

The discussion of findings regarding the study's research questions, particularly in relation to the influence of various factors on students' enrollment in chemistry education, suggests that the analytical tools utilized, such as mean values and frequency counts, offer valuable insights into the research outcomes and implications.

Analyzing the data through mean values revealed significant patterns in student responses. For instance, in Research Question 1, the mean value for peer group influence was 3.19, indicating a

notable impact of peer groups on enrollment decisions. This finding aligns with existing research highlighting the powerful influence of peers on academic choices(Odoh et al., 2021).

Similarly, in Research Question 2, a mean value of 3.33 was obtained for the perception of chemistry as a difficult subject, signifying a common barrier to enrollment. This insight emphasizes the need to address student perceptions to enhance enrollment rates.

Furthermore, in Research Question 3, parental influence demonstrated a mean value of 3.23, suggesting a considerable effect on students' career choices. Notably, parental influence has been identified as a key factor affecting students' enrollment decisions(Roe, 2006).

Overall, the utilization of mean values as an analytical tool aided in uncovering the varying degrees of influence that factors like peer groups, perceptions, and parental guidance exert on students' decisions to enroll in chemistry education. By employing these analytical tools effectively, the study was able to draw pertinent conclusions and implications for enhancing student enrollment in chemistry education.

CONCLUSION

Summary and Conclusion

The research study titled "Assessment of the Factors Responsible for Low Enrollment of Students in Chemistry in Tertiary Institutions" investigated the reasons behind the low enrollment of students in chemistry at the University of Ibadan in affiliation with Federal College of Education Okene, Kogi State.

The study used a questionnaire administered to 120 students from biology and chemistry departments. The data analysis employed frequency counts and mean values to assess factors influencing enrollment, such as peer group influence, perception of chemistry difficulty, parental influence, background knowledge, and hazards associated with chemistry.

Key Findings:

1. Peer group influence significantly affected students' enrollment decisions in chemistry.
2. Students' perception of chemistry as difficult and hazardous influenced their enrollment choices.
3. Parental influence played a significant role in students' decisions to enroll in chemistry.
4. Inadequate background knowledge deterred some students from choosing chemistry.
5. Hazards associated with chemistry significantly influenced students' enrollment decisions.

Implications of the Study:

The study highlights the need to improve teaching methods, strengthen teacher-student relationships, provide adequate learning materials, address negative perceptions of chemistry, and emphasize laboratory safety to increase student interest and enrollment in chemistry education.

The research concludes that peer group, parental influence, perception, background knowledge, and hazards impact low enrollment in chemistry. Recommendations include supporting students

in career choices, improving teaching approaches, and addressing factors hindering enrollment to promote interest in studying chemistry.

Limitations of the Study:

The limitations of the study include geographical restrictions and variations in student backgrounds, intelligence levels, and cultural influences.

Recommendations

The implications of the study's results are crucial and provide valuable insights for various stakeholders in the education sector:

1. **Teacher-Student Relationship**: Strengthening the relationship between teachers and students is essential to guide and counsel students effectively towards making informed career choices.
2. **Teaching Methods**: Innovative teaching methods should be employed to make chemistry lessons more engaging and appealing, using real-world examples and practical demonstrations to illustrate abstract concepts.
3. **Laboratory Safety**: Emphasizing laboratory safety measures and precautions in science teaching can help alleviate students' fears of potential hazards associated with chemical substances and reduce accidents.
4. **Provision of Learning Materials**: Ensuring access to adequate learning materials and facilities, especially in science laboratories, is crucial for enhancing the quality of education and promoting student interest in subjects like chemistry.
5. **Career Guidance**: Regular career guidance sessions should be organized by schools to provide students with insights into various career paths and help them make informed decisions about their future.
6. **Parental Role**: Parents should support their children's career choices based on their interests and capabilities, avoiding undue pressure that may influence students away from pursuing subjects like chemistry.

These recommendations aim to address the factors influencing low enrollment in chemistry education and provide actionable steps to promote student interest, engagement, and enrollment in chemistry courses.

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