

UNDERGRADUATE CHEMISTRY STUDENT-TEACHERS' ATTITUDE TOWARDS TEACHING PROFESSION AND ITS EFFECT ON THEIR ACADEMIC ACHIEVEMENT

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Abstract

The purpose of this study was to investigate undergraduate chemistry student-teachers' attitude towards teaching profession and its effects on their academic achievement. A descriptive survey design was used and the population was all the Bachelor of Science Education – B.Sc.Ed (Chemistry) students of the University of Jos. The study sample consisted of 80, 200-level undergraduate students (40 males and 40 females). Data was obtained using an undergraduate teachers' attitude inventory (US-TAI) with $r = 0.78$ which was a twenty item Likert instrument. The researcher also obtained the cumulative results of the academic achievement of the students from the academic office for comparison with their responses to the US-TAI. Data were analyzed using descriptive statistics and independent sample t-test at 0.05 level of significance. Results showed among others, that majority of the undergraduate prospective chemistry teachers had positive attitude towards the teaching profession. There was no significant difference in the attitude of male and female undergraduate student- teachers towards the teaching profession. The attitude of male and female prospective teachers did not differ significantly. There was, however, a significant difference between the mean academic achievement of prospective chemistry teachers that have positive attitude and those with negative attitude towards teaching profession. The study recommended that there is the need to improve undergraduate chemistry student-teachers' attitudes to increase their academic achievement. Factors responsible for favorable or unfavorable attitude of prospective teachers towards the teaching profession should be investigated. Finally, an attitude check should be carried out on prospective chemistry teachers before admission for undergraduate study in chemistry.

Keywords: Attitude, teaching profession, undergraduate, student-teachers, achievement

Undergraduate chemistry student-teachers

Introduction

Education has been widely acknowledged as a crucial factor in the advancement of nations, serving as the fundamental pillar of any nation's success. Investing in education is a crucial endeavour for communities aiming to cultivate individuals who can flourish in a society characterised by knowledge and awareness (Erdamar, Aytaç, Türk, & Arseven, 2016). One of the primary obstacles faced by contemporary education systems is the task of efficiently aligning the goals of instructors, students, and curricula. The education process is immediately impacted by any deficiencies or problems in these areas. According to Rakesh and Kiran (2016), instructors play a crucial role in the educational growth process. Nevertheless, the efficacy of an educational system is contingent upon the calibre of its educators, as the cultivation of any talent needs the guidance and support of a teacher. Ibukun (2009) asserts that the effectiveness of every educational institution is inherently limited by the capabilities and characteristics of its instructors. The efficacy of an educational institution is contingent upon the presence of instructors who possess a positive attitude towards their pedagogical responsibilities, rendering factors such as a competent principal, impressive architectural structures, robust infrastructure, and a well-designed curriculum inconsequential. The teaching profession is widely regarded as highly esteemed, yet it is important to acknowledge that not all individuals who pursue this noble vocation possess a genuine affinity for it. The act of teaching may be roughly defined as a facilitative process that promotes the acquisition of knowledge and skills. This activity entails dynamic engagement between students and teachers, resulting in transformative effects on the learner. As stated by the Eberly Centre (2023), the act of teaching is an intricate and diverse endeavour, sometimes necessitating teachers to adeptly manage several activities and objectives concurrently and with adaptability. The process entails the acquisition of pertinent knowledge regarding students and the utilisation of this knowledge to inform the design of the course and the implementation of teaching strategies within the classroom setting.

As a profession and not a job, there is also interaction with the materials it deals with the systematic interaction with learning materials. As one of the noblest and straight forward professions, teaching is regarded as the most important component of educational system worldwide. The purpose of teaching is to bring about the desired change in a learner's behavior. In other words, teaching should make a learner different in terms of what he can do, perform, or accomplish. The teacher is largely responsible for bringing about the desired change in learners since the teacher is a counsellor, role model, facilitator and mentor to the learners. An

efficient teacher influences every field of life and does bring about desirable changes in the students and deserves to be called a nation builder. The correlation between the quality and level of education and the attributes of instructors is significant, therefore emphasising the importance of adequate pre-service and in-service training for educators. The efficacy of an educational system is contingent upon the calibre and quantity of educators responsible for its administration (Erdamar et al., 2016). Teachers perform significant responsibilities within the educational system, frequently being referred to as agents of national development.

According to Mehmood, Mumtaz, Hussain Ch, and Azam (2013), effective teaching necessitates the establishment of well-defined objectives, a genuine passion for the profession, and a positive disposition towards the vocation. When examining the role of the teacher, it becomes evident that possessing a comprehensive understanding of the subject matter, as well as exhibiting certain personality qualities, is essential for achieving effectiveness and cultivating a favourable disposition towards the teaching profession. Similar to other professional associations, the field of teaching comprises individuals who are part of a structured body of knowledge, distinguishing this group from others. The professional organisation facilitates significant social benefits and fosters collaboration among its members. The process entails a structured time of instruction and readiness, accompanied by an ongoing necessity for perpetual advancement and progress. According to Nassira (2016), educators are obligated to successfully finish a certain teacher training programme. When educators participate in training programmes of this nature, they are afforded the chance to engage in ongoing professional development. This enables them to acquire novel approaches, methodologies, strategies, proficiencies, and resources pertaining to the facilitation of instruction and the acquisition of knowledge. This further instills in them a sense of confidence, happiness, and motivation to strive for higher accomplishments with their kids. There are several aspects that influence the efficacy of educators. The factors encompassed in this category consist of the credentials of teachers, their salary, prevailing misconceptions, and their attitudes towards teaching as a career.

Attitude refers to the cognitive and behavioural tendencies exhibited by individuals, which can significantly impact their performance and effectiveness in carrying out activities and fulfilling duties (Ojo, 2018). It is commonly asserted that attitudes may be categorised as either good or negative. The concept under consideration pertains to a cognitive framework that exerts influence over an individual's thought processes and behavioural patterns (Shittu, 2015). According to Bhargava and Pathy (2014), the concept under consideration is characterised as a condition of preparedness that is moulded by one's experiences and influences, ultimately

shaping an individual's response to various stimuli. Moreover, attitudes refer to the predominant inclination of humans to exhibit either positive or negative responses towards an item, person, and group of people, institution, or event. The individual's performance might be either positively or adversely impacted by their attitude. Veloo, Nor, and Khalid (2015) observed that a favourable disposition towards science serves as a catalyst for learners, motivating and inspiring them to engage in activities that ultimately result in enhanced performance and accomplishment in the field. A negative mindset results in the opposite outcome. Likewise, the mood of a teacher can also impact their efficacy in class planning and preparation.

The impact of a teacher's attitude, whether it is intentional or unintentional, significantly influences the academic achievement of pupils and the overall effectiveness of the teacher in their role. The attitude that teachers exhibit towards their profession has a direct impact on their performance and, consequently, the quality of their job. Previous research has demonstrated that the attitudes of teachers significantly impact the level of interest exhibited by pupils towards the process of learning (Shittu, 2015). Shittu and Oanite (2015) have shown that the attitudes of instructors exert a significant impact on the level of interest exhibited by students in the process of learning, whether it is through conscious or unconscious means, and whether the influence is direct or indirect. The professional demeanour exhibited by educators in the domains of communication, classroom management, and pedagogy has a significant impact on the academic achievement of students inside educational institutions. The manifestation of positive professional attitudes among teachers in their role as educators can significantly contribute to the enhancement of students' academic performance. Conversely, the display of bad attitudes by teachers in fulfilling their duties has the potential to adversely affect students' academic achievements. Teachers have a key role in the education system. The relationship between teaching attitudes and teaching competences has been shown in prior research (Singh & Srivastava, 2022). The enhancement of competencies is significantly influenced by instructors' favourable attitudes towards teaching preparation. The acquisition of subject knowledge, dedication, eagerness, the implementation of innovative methodologies, and ongoing professional development all play a substantial role in cultivating a favourable disposition towards the teaching profession.

According to research conducted by Ojo (2018), there exists a significant positive correlation between instructors' professional attitudes and students' academic achievement, as demonstrated across all the sub-variables examined in the study. According to Fehintola (2014), it is essential for a professional teacher to exhibit exemplary attitudes in their instructional practices within a conventional classroom environment. According to the findings of Wirth and Perkins (2013), the attitude of

teachers was found to have a substantial impact on student attentiveness within the classroom setting. It may be stated that teachers' professional approach to classroom management pertains to the strategies and techniques employed by educators in order to establish orderliness within the classroom environment, hence fostering a positive and conducive climate for the facilitation of teaching and learning. The emotional experiences of students can be influenced by the level of inspiration provided by their professors. When students see their teachers as lacking energy, enthusiasm, and interest in teaching, they may encounter negative emotions, such as dissatisfaction with the subject matter. Hence, it is important to foster an environment that promotes the cultivation of appropriate attitudes, beliefs, and genuine dedication to the teaching profession among aspiring educators during their training period (Tang & Hu, 2022). Efforts should be made to facilitate the cultivation of attitudes that will have a good influence on the learners. The attitudes of teachers have the potential to generate positive emotions, hence fostering increased motivation for learning. The aforementioned attitude should include one's perspective towards the teaching profession.

The attitudes of educators towards the teaching profession have a significant impact on both the process of teaching and the process of learning. In order to be an effective educator, it is imperative for a prospective teacher to cultivate appropriate attitudes and beliefs and a genuine commitment to the profession of teaching. The variations in learning environments, instructional materials, and tactics employed in first-teacher training programmes are influential factors in shaping the attitudes of student teachers towards the teaching profession. Parvez and Shakir (2013) assert that a significant number of individuals enter the teaching profession not as a deliberate decision but rather as a result of happenstance or other factors. They exhibit a lack of enthusiasm for the teaching profession and reluctantly pursue admission into Bachelor of Education programmes as a final resort. The complete identity of a student-teacher aspiring to become a teacher is contingent upon their disposition towards the teaching profession, encompassing their academic accomplishments. The student-teacher relationship is of paramount importance as it significantly influences the decision-making process of preservice teachers along their teaching journey and might potentially impact their academic performance during training. The viewpoints of prospective teachers regarding employment play a significant role in the training of trained teachers. Hence, it is important for aspiring educators to cultivate favourable dispositions towards the teaching profession. Through their teacher training programme, individuals will acquire the necessary skills and knowledge to properly carry out their professional duties by assimilating a teaching and learning framework that aligns with the existing educational system. According to Tekneci (2010), it is imperative for higher education institutions that provide teacher training programmes to have a clear

purpose of cultivating competent, idealistic, and proficient instructors who possess effective instructional qualities and exhibit favourable dispositions towards the teaching profession.

The existing body of research has consistently emphasised the significance of many elements, namely the gender of the instructor, academic accomplishment, and work happiness, in shaping individuals' attitudes towards their chosen career. Bilgin and Aykac (2016) discovered that there is no significant difference in the teaching and learning ideas of undergraduate pre-service teachers when analysed through the lens of gender. However, it was observed that their levels of professional attitude were generally favourable, and there were substantial differences in their views towards the teaching profession based on gender. Pushpam (2003) established a favourable correlation between the attitude of female pre-service teachers towards teaching and the job environment. According to Erdamar et al. (2016), there exists a disparity in views towards their work between female and male instructors, with female teachers exhibiting more favourable sentiments. Female teachers exhibit a greater prevalence of positive views in contrast to their male counterparts, suggesting that the notion of teaching being a more suitable career for women might have favourable outcomes in this context. In addition to the findings of Saban (2003), which indicate that the teaching profession is considered suitable for females, it may be posited that one contributing factor to their more positive attitude towards teaching is the belief held by female preservice teachers that they are capable of effectively balancing their familial and professional responsibilities. This finding illustrates that the attitudes of female aspiring teachers exhibit a higher level of quality compared to their male counterparts upon commencing their professional practice.

The research conducted by Bulut (2011) found that there was no statistically significant distinction in the views towards the teaching profession between female and male individuals who aspired to become teachers. The adequate training of prospective teachers is of significant importance, as it enables them to formulate their teaching and learning concepts through the exercise of academic autonomy and the cultivation of good attitudes towards the teaching profession.

Statement of Problem

Numerous scholarly investigations, like the works of Bhargava and Pathy (2014) and Singh and Srivastava (2022), have been conducted to examine the disposition of undergraduate student-teachers towards the vocation of teaching. Several studies have posited that a significant number of aspiring educators enter the teaching profession not out of deliberate choice but rather as a result of happenstance or other underlying factors. According to other studies, it has been suggested that

aspiring teachers have a positive attitude towards their future careers since they hold teaching in high regard and possess a belief in their ability to become effective educators. It is believed that harbouring good attitudes towards the teaching profession is likely to have an impact on several aspects associated with the profession when aspiring instructors start their teaching careers. According to Bilgin and Aykac (2016), it is commonly thought that undergraduate student-teachers who possess favourable attitudes towards the teaching profession are likely to be successful instructors in several aspects. When student-teachers possess favourable dispositions towards the teaching profession, they are capable of effectively executing their responsibilities and fulfilling their duties. Additionally, they can cultivate creative-thinking and research abilities, facilitate student motivation, proficiently communicate verbal and non-verbal messages to students, and efficiently manage their time. They are likely to exhibit greater receptiveness to novel concepts.

However, there seems to be no definitive conclusion concerning their attitude, particularly that of undergraduate chemistry student-teachers. There is little or no studies on year two chemistry undergraduate student-teachers' attitude towards the teaching profession and how such affect their academic achievement. There is need for such studies in view of the importance of chemistry in today's science and technology. There is need to ensure that chemistry teachers are not only academically qualified but favorably disposed towards teaching the subject. The study is an effort to find out the undergraduate chemistry student teachers' attitude towards the teaching profession and how it affects their academic achievement, especially given the central role of chemistry in science and technology. Knowing the attitudes of prospective chemistry teachers towards the teaching profession will help their trainers to address them during prevocational training.

Research Questions

The following research questions were formulated to guide the study:

- i. What is the attitude of undergraduate chemistry student-teachers towards personal preparation for the teaching profession?
- ii. What is the attitude of male undergraduate chemistry student-teachers towards teaching profession differ from that of the female undergraduate chemistry student-teachers?
- iii. What is the difference between the achievement of male and female undergraduate chemistry student-teachers?
- iv. What is the difference between the mean academic achievement scores of undergraduate chemistry student-teachers that have positive attitude towards teaching profession and those that have negative attitude towards teaching profession?

- v. What is the attitude of undergraduate chemistry student-teachers differ from their academic achievement?

Research Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

- i. There is no significant difference between the attitude of undergraduate chemistry student-teachers towards teaching profession and their academic achievement.
- ii. There is no significant difference between the attitude of male and female undergraduate chemistry student-teachers.
- iii. There is no significant difference between the academic achievement of male and female undergraduate student-teachers.
- iv. There is no significant difference between the mean academic achievement scores of undergraduate student-teachers that have positive attitude and those have negative attitude towards teaching profession.

Methodology

The design of the study was descriptive survey design. A survey research is one that involves collecting information about a group of people by asking them questions and analyzing the results (McCombes, 2023). Surveys are used as a method of gathering data in many different fields and are good choice when a researcher is interested in finding out about the characteristics, preference and opinions, or beliefs of a group of people. It is a description of present situation that is done through direct observation or such instruments like questionnaires, opinionnaires and interviews. This study fits into this because the researcher collected information only from a sample of teachers in the state and generalize its findings to the population.

The population of the study was all the Bachelor of Science Education – B.Sc.(Ed) students in the chemistry education unit of University of Jos. The study sample consisted of eighty undergraduate chemistry education students of the University of Jos. The sample considered of forty male and forty female students randomly selected for the study.

The research instrument was a pre-service teacher attitude inventory, P-STAI developed by the researcher. The instrument was validated, and reliability established appropriately. The inner rating reliability coefficient was estimated to be 0.78. The P-STAI is a twenty item Likert instrument with statements grouped into five blocs covering:

- i. Personal preparation
- ii. View about teaching profession.
- iii. Teaching profession as a choice

- iv. Job Satisfaction
- v. Status accorded teaching profession.

The Likert continuum: strongly agree (SA), agree (A), disagree (D) and strongly disagree (SD) were provided for each item. For positive statements, if mean >2.5, it means agreed; if mean <2.5, it means disagreed. For negative statements, if mean >2.5, it means disagreed and if mean <2.5, it means agreed. The pre-service chemistry teachers were issued the P-STAI and encouraged to complete it by ticking what each felt was the appropriate option to each statement. The researcher administered and encouraged them to complete it as soon as possible. The different categories were sorted out as soon as they completed it into male/female.

The researcher also obtained the cumulative results (cumulative grade points) of the academic achievement of the students for comparison with their responses to the P-STAI. The researcher gave each of the respondents a number which he used to identify them and to trace their results. The responses were tallied appropriately. The data was analyzed using frequency, mean and percentage (for the research questions). T-test statistical tool was used to test the hypotheses and presented accordingly.

Results

Research Question One: What is the attitude of undergraduate student-teachers towards personal preparation for the teaching profession?

Table 1

Attitude of undergraduate student-teachers towards teaching profession

	Frequency	%	Valid %
Negative	32	40.0	40.0
Positive	48	60.0	60.0
Total	80	100.0	100.0

The output in Table 1 indicates that large majority of the undergraduate student-teachers' attitude towards personal preparation was positive. Those with positive attitude accounted for 60% of the respondents. 48 responded expressed this positive attitude in their responses while 32 (40%) indicated negative attitude.

Hypothesis One: There is no significant difference between the attitude of undergraduate student-teachers towards teaching profession and their academic achievement.

Table 2

Difference in attitude and achievement of chemistry student-teachers

(sig)	N	Mean	SD	df	t- cal	p-value
Attitude	80	2.41	0.128	158	10.99	0.000
Achievement	80	1.67	0.583			

T-test of Independent was conducted and the output in Table 2 above reveals that the mean attitude scores of undergraduate student-teachers is 2.41 with standard deviation 0.128, similarly their mean performance is 1.67 with standard deviation of 0.583. The result confirms there is a significant difference between the teachers' attitude and their performance since the p-value of 0.000 is less than the level of significant 0.05. Hence the null hypothesis is not retained.

Research Question Two: How does the attitude of male undergraduate student-teachers teachers towards teaching profession differ from that of the female undergraduate student-teachers?

Table 3

Attitude of male and female undergraduate student-teachers toward teaching profession

Sex	N	Mean	SD.	Mean Diff
Male	40	2.16	0.834	0.23
Female	40	2.39	0.912	

The result in Table 3 indicates that there is a similarity in the attitude of male and female undergraduate student-teachers towards teaching profession the difference in mean score is 0.23 – and is not significant. This means that majority of each (male and female) have positive attitude towards teaching since Table 1 indicated that majority of the undergraduate student-teachers had positive attitude.

Hypothesis Two: There is no significant difference between the attitude of male and male undergraduate chemistry student-teachers

Table 4

Difference between the attitude of male and female undergraduate chemistry student-teachers

Sex	N	Mean	SD	df	t-cal	p-value
Male	40	2.16	0.834	78	-1.200	0.234
Female	40	2.39	0.912			

T-test of independent was conducted and the result in Table 4 clearly reveals there is no significant difference in the attitude of male and female undergraduate chemistry student-teachers. Their attitude in this research is similar since the p-value of 0.234 is higher than the level of significance (0.05). There is enough evidence to accept the null hypothesis.

Research Question Three: What is the difference between the achievement of male and female undergraduate student-teachers?

Table 5

Difference between the achievement of male and female undergraduate student-teachers

Sex	N	Mean	SD	Mean Diff
Male	40	1.68	0.594	
				0.01
Female	40	1.67	0.579	

Table 5 revealed that the difference in the mean achievement of male and female undergraduate student-teachers is 0.01. This difference is negligible. While the mean achievement of the males is given as 1.68 with a standard deviation of 0.594, the mean achievement of females is given as 1.67 with standard deviation of 0.579

Research Hypothesis Three: There is no significant difference between the academic achievement of male and female undergraduate chemistry student-teachers.

Table 6

Difference between the achievement of male and female undergraduate chemistry student-teachers.

Sex	N	Mean	SD	df	t - cal	p-value
Male	40	1.68	0.594	78	0.036	0.971
Female	40	1.67	0.579			

T-test of Independent was carried out and the result in Table 6 above clearly indicates that there is no statistically significant difference between the achievement of male and female undergraduate chemistry student-teachers. Their mean performance score for male is 1.68 and sd 0.594 while the mean performance score of females is 1.67 with standard deviation 0.579. The p-value of 0.971 indicates there is no statistically significant difference in their achievement since the p-value is highly greater than the level of significant. Hence the null hypothesis is accepted.

Research Question Four: What is the difference between the mean academic achievement scores of undergraduate student-teachers that have positive attitude towards teaching profession and those that have negative attitude towards teaching profession?

Table 7

Mean academic achievement scores of undergraduate student-teachers with positive attitude towards teaching profession and those with negative attitudes.

Group	N	Mean	SD	$\bar{x}_1 - \bar{x}_2$ - difference
Positive	48	1.85	.58	0.40
Negative	32	1.45	.49	

Table 7 revealed the mean score of the positive and negative groups. From the result the mean score for positive group was (mean = 1.85, SD = .58) and the mean score for negative group was (Mean =1.45, SD =.49) with a mean difference of 0.4, indicating that there was no difference in the achievement of the two groups.

Research Hypothesis Four: There is no significant difference between the mean academic achievement scores of undergraduate chemistry student-

teachers that have positive attitude and those have negative attitude towards teaching profession?

Table 8

Summary of t-test result on differences between the mean scores of students with positive attitude and those with negative attitude

Group	N	X	SD	df	t-cal	p-value	Decision
Experimental	48	1.85	.58	78	3.33	0.001	Significant
Control	32	1.45	.49				

Table 8 revealed the t-test result on the difference between the mean score of the positive and the negative group. In the positive group, the mean score was 1.85 with standard deviation of .58 and the negative group had a mean score of 1.45 and standard deviation of .49. The result also yielded $t(82) = 3.33$, $P < 0.05$. Since the P-value of 0.001 is less than the 0.05 level of significance, the null hypothesis was rejected. It was concluded that there is a significant difference between the mean scores of the positive and the negative group. The undergraduate chemistry student-teachers that have positive attitude achieved better than those who had negative attitude.

Discussion of Results

One notable discovery from the study is that a significant proportion of undergraduate chemistry student-teachers had a favourable disposition towards the vocation of teaching. The analyses conducted indicate that there is not a statistically significant disparity in the attitudes of male and female student-teachers towards the teaching profession. This conclusion is consistent with the previous study conducted by Bilgin and Aykac (2016), which found that there is no significant difference in teaching and learning concepts between male and female student-teachers. Bulut (2011) conducted a study that found that there was no statistically significant difference in attitudes towards the teaching profession between female and male student-teachers. The present discovery contradicts the findings of Erdamar, Aytaç, Türk, and Arseven (2016), who observed that female instructors exhibit more favourable views towards teaching in comparison to their male counterparts. There is a lack of substantial disparity in the attitudes exhibited by male and female undergraduate chemistry student-teachers. The researchers exhibit a comparable mindset in their study. This conclusion is consistent with the research conducted by Bulut (2011), which found no statistically significant difference in

the attitudes towards the teaching profession between female and male undergraduate chemistry student-teachers. Contrary to the findings of Erdamar, Aytac, Türk, and Arseven (2016), this study reveals that male instructors exhibit less favourable sentiments towards their work compared to their female counterparts.

Female instructors have a greater prevalence of positive attitudes in comparison to their male counterparts. According to Saban (2003), the teaching profession is commonly perceived as a suitable career choice for women, which may explain their favourable disposition towards teaching. The study revealed that there was no statistically significant disparity in academic performance between male and female undergraduate chemistry student-teachers. The complete identity of an undergraduate teacher, encompassing their academic accomplishments, is contingent upon their disposition towards the teaching profession. The impact of attitude on the academic accomplishment and performance of both students and instructors has been widely observed and documented. The disposition of students towards the course significantly influences their academic performance. Amrai, Motlagh, Zalani, and Parhon (2011), as well as Kazemi, Shahmohammadi, and Sharei (2013), discovered a positive correlation between students' attitudes and their academic achievement.

According to Das and Halder (2014), it has been suggested that the optimistic attitude of students might have an impact on their academic performance. Given the absence of a statistically significant disparity in the attitudes exhibited by male and female undergraduate chemistry student-teachers, it is reasonable to anticipate a similar absence of a statistically significant disparity in their academic accomplishments as well. A notable disparity exists in the mean academic success scores of undergraduate chemistry student-teachers who possess a good attitude towards the teaching profession compared to those who exhibit a negative attitude. The findings indicated that pre-service chemistry instructors who had a positive attitude towards the teaching profession attained better levels of achievement compared to those who displayed a negative attitude.

This conclusion is consistent with the research by Nja, Orim, Neji, Ukwetang, Uwe, and Ideba (2022), which looked at the connection between students' attitudes and academic achievement in a flipped classroom. Their study revealed that a positive attitude had a beneficial effect on the academic performance of B.Sc. (Ed.) chemistry students. The findings further indicated that a favourable disposition among students resulted in a rise in academic achievement during the redox reaction assessment in the field of chemistry. Students who possess a good attitude have been found to attain higher levels of achievement compared to their

counterparts who exhibit a negative attitude. The findings of Amrai, Motlagh, Zalani, and Parhon (2011) and Kazemi, Shahmohammadi, and Sharei (2013) align with the present study, since they too observed a positive correlation between students' attitudes and their academic performance. Furthermore, Melad (2022) demonstrated a correlation between students' attitudes towards the course and their academic accomplishments. The correlation between attitude and academic success is evident, as it manifests via the level of engagement exhibited by students towards their educational pursuits. Students who possess a favourable disposition towards their academic pursuits are capable of discerning their obligations within the learning process, establishing personal objectives, adopting more efficient study strategies, and thus enhancing their academic achievements and overall performance.

Conclusion

This study aimed to investigate the attitudes of undergraduate chemistry student-teachers towards the teaching profession and its impact on their academic performance. It is noteworthy to discover that a significant proportion of undergraduate chemistry student-teachers exhibit a favourable disposition towards the vocation of teaching, with no discernible disparity in attitude between male and female undergraduate student-teachers. Maintaining a positive attitude towards the teaching profession is highly advantageous, as it instills optimism and fosters professional competence and acceptability in future endeavours. The student-teachers' academic progress will also be influenced by their positive attitude. The attitude of a teacher towards the teaching profession is a significant factor that influences the quality of the teaching process. The results of this study indicate a necessity for educational institutions tasked with teacher training to address the issue of student-teachers' negative attitudes. This intervention has the potential to not only mitigate students' performance deficiencies in examinations but also enhance their intrinsic drive to acquire knowledge in the field of chemistry, as well as foster their ability to effectively transmit this knowledge to others.

Recommendations

This research recommended that it is important to improve the attitudes of undergraduate chemistry student-teachers to increase student's academic achievement. Further studies should be conducted to assess the factors responsible for the favorable or unfavorable attitude of prospective teachers to improve their attitude towards the profession. It is also recommended that an attitude check be carried out to assess the attitude of prospective chemistry teachers before admission for an undergraduate study in chemistry. This will help ensure that only those with

positive attitude only are allowed to undertake the course. It is believed that when chemistry teachers that have positive attitude are given the opportunity to teach, the achievement of the learners will be improved. Such teachers need to be encouraged to remain committed and interested in the teaching profession through consistent remuneration, motivation, organizing and sponsoring the teachers to attend conferences, workshops and further training by government and school proprietors.

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