# Teaching Science at the Primary school Level: "Problems Teachers' are facing"

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**ABSTRACT---** ***This study aimed at ascertaining the problems teachers face teaching science at the primary level. Literature reviewed relating to school science have suggested that students lack interest in science. This lack of interest on the part of the students may be as a result of problems teachers face implementing the science curriculum at the primary level. These problems if not identified may affect the quality of science education. The study was guided by one research question which was further sub- divided into two sub- questions. A descriptive survey research design was used. A 20 item questionnaire was administered to eighty teachers from ten primary schools from the administrative regions five and six in Guyana. . Validation of the instrument was achieved through the contribution of a science educator from the University of Guyana. A reliability coefficient of 0.77 was obtained using Spearman-Brown split half coefficient. Data collected were analysed using mean and percentages. The finding showed that teachers admitted that they need continuous professional development sessions to enhance their science instruction and science content knowledge. It was therefore recommended that a research study be conducted to ascertain the teachers' specific area of interest for continuous professional development in science education.***

## 1. INTRODUCTION AND BACKGROUND

"Science defines the universe for us, informs our vision of human essence, and speaks to the hopes and fears of our world. It provides the great narrative of truth, meaning, and essence that we live by" (Turner, nd cited by Hassard, 2012). Thinking scientifically helps us to develop new ways of thinking and widens and deepens our capacities to think (Pozo, 2008). Understanding science therefore helps children to appreciate the world around them by teaching them to make observations, collect information and to use logical thinking to draw conclusion in order to solve lives daily challenges. Hence, Science education has a major role to play in the development of informed citizens in this advance technological era (Watters & Ginns, 2000).

It is therefore worrisome that students' attitude and interest in science globally has declined (Adu-Gyamfi, 2013). More so, there are many well documented studies of decline interest in science and science careers globally at the primary level (Jarvis & Pell, 2012). President Barack Obama (2009) identifies this decline interest in science as a global issue, since it presents a challenge to the achievement of quality basic science education. This situation of lack of interest in science is also the same throughout the Caribbean (Ogunkola & Samuel, 2011). Research has shown that the only way students will develop and sustain an interest in science is if their earliest experience with science is memorable. Most researchers have agreed that the students' are more interested in science before the age of fourteen (Dogu, Dinc,&Maydan, 2007)). Therefore, students' at this age (primary school age) are at a critical period in developing an understanding of themselves and their world. Hence, the primary school level is the time when students build a fundamental understanding of science (Tilgner, 1990; Garcia, 2003).

The challenge therefore is to make science education interesting, meaningful and useful for students at the primary level. Leever (2010) reported that the quality of teaching which students were receiving has contributed to their decline interest in science. Hence, the desire result of learning therefore depends on the teacher being in the center (Akyol, 2000 cited in Ding, Doug, & Maydan, 2007). Simply put, a good teacher is vital for primary science (Ding,Doug & Maydan, 2007).However, many primary school teachers face a trio issue when it comes to teaching science: they don't like science, they don't feel confident in their knowledge of science, and they don't know how to teach science effectively (Allen, 2006). "If teachers lack confidence in their own science knowledge, they not only have problem teaching students about science but may also give students the impression science is hard"(Leever ,2010). Further problems lies with teachers' ability to select appropiate instruction to suit the needs of students. Hence, if teachers do not understand their learners need, then their instructional approaches will be a hit or miss ( Davis, etal , 2006). Harlen, and Holroyd (1997) postualted that teachers themselves were ready to admit their concerns about teaching science. Hence, a clearer understanding of the

problems teachers face in relations to their science content knowledge and their science instruction is needed is order to effectively influence the way in which science is taught at the primary level.

Therefore against this background, the researcher aims to find out what are the problems teachers face when teaching science at the primary level.

## 2. RESEARCH QUESTION

What are the problems teachers' face teaching sciences at the primary level?

**Sub-Research questions**

1. What are the problems teachers' faces with science instruction at the primary level?
2. What are the problems teachers' faces with their science content knowledge at the primary level?

## 3. THEORETICAL FRAMEWORK

The theoretical framework of this study was guided by the Bandura Self-Efficacy Theory which is part of Social Cognitive Theory. Bandura (1997) explains that self-efficacy refers to the belief in one's capabilities to organize and execute the course of action required to manage prospective situation. Simply put, self- efficacy is what an individual believes he or she can accomplish using his or her skills under certain circumstances (Snyder &Lopez, 2007 cited by Olowodunoye, 2015).

Self-efficacy beliefs have two scopes: Personal Science Teaching Self- Efficacy (PSTE) which refers to a teacher's belief that he or she has the ability to teach science effectively and affect students' achievement; and Science Teaching Outcome Expectancy (STOE) which reflect a teacher's belief that students can learn science given external factors.

Fundamental to the understanding of the theoretical perspective is that teachers need to have confidence in their knowledge of science and in their ability to select and use innovative, active teaching practices in order to effectively implement the science curriculum at the primary level. Hence, the use of Innovative teaching practices can stimulate students' interest in learning science.Piaget (1974) cited in Schunk (1996) postulates that active methodology can foster self-motivation and independent learning, rather than merely transmitting facts and rules. Therefore, approaches to instruction must be considered a serious factor in science education (Umoke &Nwafor, 2014). Hence, science instruction is an interdependent process which depends on the teachers having confidence in his or knowledge of science content, and an adequate understanding of how his or her students' learn science. Teachers' who reflect on these issues will see themselves as vital to their students learning science.

**Science Instruction**

Teaching and learning are on the opposite sides of the same coin. It therefore should be the aspiration of all teachers that his/her students not only learn, but master the concepts taught. diSessa (2000) mentioned that teachers are more interested in "what is taught" than "how it is taught". Wenger (2000) added that students are born of learning, but can also learn not to learn (cited by Bang, 2013). Hence, if students are not taught appropriately they would not learn. Therefore, closer attention must be placed on instruction.

However, many teachers, especially at the primary level see teaching science as a complex phenomenon and this creates many discrepancies in their science instruction. Mellado(1998) suggested that a typical shortcomings of primary school teachers is not knowing how to teach science. Plourde (2002) added that less than one third of primary school teachers feel competent to teach science. Hence, this has led to science traditionally be taught at the primary level via the text book method, which involved merely rote learning (Silverman, 1993; Garcia, 2003). Text book tasks seldom give students the opportunities to develop their own hypothesis and draw their own conclusion about a phenomenon (Haury & Rillero, 1994) which is of paramount importance for the development of scientific thinking and skills. Kelble and Howard (1994) reported that many primary school teachers stifle their students' natural scientific curiosity "under an avalanche of fact" from the textbook and thus making their science instruction dull and uninterested (cited in Jarrett, 1998)**.** For that reason, current primary school science instruction is not producing the required scientific literacy needed in rapidly changing society (Cole & Beuhner-Brent, 1991).

Hence, special skills are required to effectively delivery this science in the classroom. In fact, Pourde (2002) agreed that it is not sufficient to have good teaching skills when it comes to teaching science, but good science teaching requires its own teaching strategies**.** Good science teaching helps students develop inquiry skills necessary to be democratic citizens

and lifelong science learners (Crawford, 2007**).** Therefore, a deeper understanding of most science concepts comes with inquiry-based instructions which encourage students to explore the nature of science (Mastropieri & Scruggs, 1994). Inquiry- based science instruction involves hands on Laboratory activities such as observing and explaining scientific phenomena which is vital for students understanding of science. However, laboratory activities are another concern for primary school teachers (Childs & McNicholl, 2007). Many primary schools teachers themselves fail to use laboratory exercises in their science teaching because of the lack of understanding how to use basic science equipment. Good questioning techniques are also important for good science teaching. The use of appropriate questions and techniques will lead to a deeper understanding of scientific concepts. Teachers should pose divergent questions as often as possible, allow learners time to express themselves (McIntyre & Juliebo, 1995), and create a comfortable environment where learners are encouraged to ask questions to clarify their thoughts (Puntambekar & Kolodner, 2005). Generally,good questions asked by teachers or students will provoke critical thinking which is important in learning science.

Hence, the demand for teachers to produce science literate students is great. In order to produce these types of students, teachers must be more than facilitators, organizers, managers and discussion leaders; they must be skilled practitioners of science, with a keen appreciation of science as a cultural phenomenon (Hodson, 2002). With this being said, we can therefore agree that effective science instruction requires a lot from the teacher.

**Science content knowledge**

Primary school teachers are tasked with the responsibility of teaching several subjects which includes science to a single group of students. Teaching is an intricate task that requires many forms of knowledge (Barnett & Hodson, 2001). Thus, effective primary science teaching requires the acquiring of specific knowledge, including mastery of content knowledge (Abell and Bryan, 1999 as cited by Hudson, 2004). Hence, in order for primary school teachers to help their students learn science, they must have a firm grasp of the important ideas in this discipline. This includes not only knowledge of specific topics of the curriculum, but also knowledge about the epistemology of science or the nature of scientific knowledge (Mizzi, 2013). Therefore, one of the most important qualities of being a good science teacher is having a good knowledge of the subject matter. Teachers with good knowledge of content are better able to design strategies to meet different needs of learners (Carnoy &Arends, 2010). These strategies includes using " their knowledge to address big ideas and major concepts; plan what they are doing and help their students do so; consistently treat their students with respect and apply ideas of fairness and equity in their classes; conduct investigations and help students to generate and interpret data; make students work in heterogeneous groups; relate new ideas to previously presented ones, especially to the driving question and to their previous investigations; request that students present their work to the whole class and revise these final presentations; use technology, throughout units, for various purposes such as learning about structure of matter, doing investigations, collecting data and building models; allocate enough time for their students' learning; provide various opportunities for learning meaningful ideas, in meaningful ways; and address individual differences and needs of their students" (Tal, Krajcik, &Blumenfeld, 2006)". Science content knowledge therefore makes a difference both in teachers' professional practice and pupils' achievement (Diakidoy & Jordanou, 2003).

There are two factors which may contribute to the lack of confidence in science teaching: unfamiliar content and unfamiliar pedagogical strategies, especially laboratory work and experiments (Mizzi, 2013). Inadequate knowledge in the subject will affect teachers' self-confidence when teaching concepts outside their area of specialization (Mizzi, 2013). Primary school teachers in general have been found to possess a low level of accurate scientific knowledge as well as poor scientific skills (Stevens &Wenner 1996**).** As a result, many primary school teachers lack confidence with their science content knowledge and therefore, possess low science teaching efficacy (Allen, 2006). If teachers lack confidence in their own science content knowledge, they not only have problems teaching students about science but may also give students the impression that science is hard" (Leever, 2010). Hence, teachers' lack of confidence with their science teaching may be demonstrated in various ways such as: when preparing their lesson plans, choosing or designing strategies,, answering students questions, carrying out experiments, applying science concepts to everyday life situation, and motivating students to developing an interest in science (Mizzi, 2013**).** Hence, it is apparent that the more enthusiastic and confident the teacher is about science, the more time will be spent on teaching science, the more hands-on activities will used, and more likely student centered approach will be encouraged (Hodson, 2002).Van Driel, Dejong and Verloop( 2002) also claimed that teachers with good science knowledge were also more aware of students difficulties and misconceptions.

In addition, inadequate science content knowledge may result in primary school teachers relying heavily on their science text books as their main source of scientific knowledge to teach students. Teachers with limited or lower science knowledge followed the text book structure quite closely (Hashweh, 1987). Mulholland and Wallace (2005) noted that many teachers simply resort to using curriculum materials to improve their science knowledge and that this may well limit growth in this important knowledge area. However, teaching science at the primary level requires a strong knowledge of the fundamental principles of science (Mulholland & Wallace, 2005). Hence, the use of technology can be used to help teachers develop their science knowledge and strengthen their science teaching. However, researchers have reported that practicing teachers require support since many are inadequately trained to use technology in their teaching (Deaudelin, Lefebvre, Brodeur, Dussault, Richer, & Mercier, 2005; McRobbie, Ginns, & Stein, 2000). It is therefore vital that primary school teachers be provided with opportunities to enhance their knowledge and confidence in their science teaching. Hence,

professional development opportunities must address primary school teachers' needs to learn science content and new strategies such as multimedia technologies for helping learners. It must also address new perspectives about the realities of the culture of science learning and teaching. Professional development opportunities must also take into account the need for time and the development of structures that allow for new social and personal constructions about what it means to be a teacher (Shapiro & Last, 2002). However, there is need for professional development sessions to move away from short-term, one day workshops (Shapiro, 2006) and a move to long-term professional development programmes which are needed to actually change experienced teachers' practical knowledge (Van Driel, Beijaard, &Verloop, 2001).

Paradoxically, Kind (2009) suggested that while a good background in subject matter knowledge is a pre-requisite for good teaching it is not the only requirement. He contends that high academic performance in a specialist subject is not an automatic precursor to good teaching. Never the less, there is solid empirical evidence that teachers with a sound science content knowledge will perform better in the classroom that a teacher with inadequate knowledge.

## 4. RESEARCH DESIGN

The research design used for this study is the survey design. The survey is descriptive in nature and is used to determine the problems teachers' face teaching science at the primary level. A survey design is most appropriate since it is useful in accurately documenting a person's thoughts, opinions, and feeling about an area under investigation.

### Population and Sample

The population for this study comprised of eighty (80) teachers from ten Primary schools employed by the Ministry of Education, Guyana in the academic year 2017-2018. Eight (8) teachers were randomly selected from each school by selecting every 2nd name on the staff time book. The teachers were selected from the Administrative regions five (5) and six (6) in Guyana. They possess varying status and years of professional teaching experiences.

### Instrumentation

The instrument used to gather data for the study was a questionnaire. The questionnaire consisted of three sections. Section "A" focused on biographic data while Section "B" and Section "C" contained ten (10) items each rated on a four point modified Likert Scale. The four-point scale was rated as follows: strongly agree = 4 points, agree = 3 points, disagree = 2 points and strongly disagree =1 point.

### Validity

The questionnaire was validated by a lecturer from the Faculty of Natural Science, University of Guyana who is qualified in the area of Science Education. His feedback was used to improve the general quality of the instrument

### Reliability

The questionnaire was pilot tested on 20 teachers of the Rosignol Primary Schools, Region No. 5. This school was not used as part of the study. The Spearman-Brown split half reliability coefficient was applied. A reliability of 0.77 was obtained which is considered acceptable reliability (William, 2015).

### Procedures

Permission was sought through the Head teachers to carry out survey in the schools .Copies of the survey instruments and additional information about the study were provided in the form of a cover letter. After permission was granted, the researcher established protocol with the teachers. Eighty (80) questionnaires were administered during the lunch break and after school hours. Each teacher was given twenty four (24) hours to complete the questionnaire. All information collected was recorded and data tabulated.

### Analysis of data

Descriptive statistics were used to analyze the data for this study. The descriptive statistics were mean and percentage. These statistics were used to describe the general characteristics of the population.

## 5. RESULTS AND DISCUSSION

**Table 1: Research Question 1:** What are the problems teachers' faces with science instruction at the primary level?

| | Mean | % Agree | % Disagree |
|---|---|---|---|

| | | | |
|---|---|---|---|
| I can effectively teach science at the primary level. | 3.13 | 88.75 | 11.25 |
| I am able to choose the most appropriate science strategy to suit the ability of my students. | 3.21 | 91.25 | 8.75 |
| use science strategies in my classroom that will help my students to discover new knowledge for themselves. | 3.23 | 96.25 | 3.75 |
| I use the scientific method of investigation in my science teaching. | 2.93 | 78.75 | 20 |
| I can effectively plan and carry out a science experiment. | 3.15 | 86.25 | 13.75 |
| I am able to effectively use the demonstration method in my classroom. | 3.16 | 92.50 | 7.50 |
| I am able to create and use improvised materials effectively in my students. | 3.24 | 92.50 | 7.50 |
| I rely on students' science textbooks to teach science. | 2.15 | 28.75 | 71.25 |
| I use a lot of open ended questions in my science teaching. | 2.75 | 70 | 28.75 |
| I need professional development to help me teach science. | 2.48 | 42.5 | 57.5 |

A summary of the data is presented in the table above. The findings show that most of the teachers surveyed had expressed that they used teaching strategies such as the scientific method of investigation and the demonstration method in their science teaching. More so, they claimed that they can effectively plan and carry out a science experiment and are able to create and use improvised science materials in their classrooms. They also agreed that the strategies they used in their classrooms help their students to discover knowledge for themselves, and as such, many believed that they do choose the most appropriate teaching strategies to suit the abilities of their students.

However, almost one third of the teachers (28.75%) claimed that they rely on students' textbook to teach science and that they do not use a lot of open ended (divergent) questions in their science teaching. Never the less, 88.75 % of the teachers believed that they can effectively teach science at the primary level. Interestedly 42.5 % of them expressed the need for professional development to help them teach science at the primary level.

**Table 2: Research Question 2:** What are the problems teachers' faces with their science content knowledge at the primary level?

| **Items** | **Mean** | **% Agree** | **% Disagree** |
|---|---|---|---|
| I feel confident when I teach science | 3.16 | 91.25 | 8.75 |
| I have sufficient knowledge of science concepts to teach Science. | 2.96 | 82.50 | 17.50 |
| I understand the nature of science. | 3.04 | 88.75 | 11.25 |
| I can answer students' questions about science concepts effectively. | 3.01 | 87.50 | 12.50 |
| I am able to relate science concepts to everyday life. | 3.02 | 97.50 | 2.50 |
| I am competent in planning a good science lesson. | 3.09 | 93.75 | 6.25 |

| | | | |
|---|---|---|---|
| I am a able to use my time effectively during my science lessons. | 2.99 | 82.50 | 17.50 |
| I use technology in my science teaching. | 2.69 | 65 | 35 |
| Students' science text book is good source of knowledge. | 2.54 | 48.75 | 50 |
| I would like professional development sessions to help me enhance my knowledge in science. | 3.10 | 88.75 | 11.25 |

The data displayed on the table above highlight that about quarter of the teachers (17.5%) surveyed claimed that they were unable to use their time efficiently during their science lessons. Slightly more than one thirds (35 %) of the teachers said that they do not use technology as part of their science teaching, and almost half (48.75 %) of them have identified students' science text as a good source of knowledge.

More so, about one quarter of the teachers (17.5%) have confessed that they do think they have sufficient knowledge of science concepts to teach at the primary level. However, majority of teachers claimed that they do feel confident teaching science, since they are able to effectively answer students' questions and relate science concepts to everyday life. Many also believed that they are competent in planning good science lessons. Suprisingly, 88.75% of the teachers have expressed an interest in professional development to enhance their knowledge in science.

## 6. DISCUSSION AND CONCLUSION

Primary science if taught effectively can provide students with lifelong skills. However, it requires that teachers possess the knowledge and skill to deliver the science curriculum at this level. This study showed that primary school teachers felt confident in their abilities and knowledge to dispense the science curriculum at this level. This suggested that they possess a high level of personal science self- efficacy. However, this is incongruous with Allen (2006) who found that primary teachers lacks confidence with science content and have low science efficacy. This high level of science self-efficacy that the researcher found is enunciated by teachers perceptions that they possesses sufficient knowledge, are competent lesson planners, are able to make science concepts and content relatable and can answer students questions effectively. Mizz(2013) found that teachers who lack confidence in their science teaching did the opposite.

Primary school teachers' have also expressed that they used instructional strategies such as the demonstration method and the scientific method of investigation in their science teaching. Using such strategies, the teachers claimed help their students to discovery and construct scientific knowledge for themselves**.** Hence**,** a deeper understanding of most science concepts comes with inquiry-based instructions which encourage students to explore the nature of science (Mastropieri & Scruggs, 1994). Consequently, the ability to choose inquiry- based instructions have led to many teachers to report that they can effectively teach science at the primary level. However, this is contrary to the finding of Plourde (2002), who found than less than a third of elementary teachers felt competent to teach science. Effective science teaching also requires many other skills that teachers must possess. One of these skills is to use good questions and questioning techniques in their classrooms. McIntyre and Juliebo, (1995) suggested that teachers should pose divergent questions as often as possible, allow learners time to express themselves, and create a comfortable environment where learners are allowed to ask questions to clarify their thoughts (Puntambekar & Kolodner, 2005). However, it was found in this that more a third of the primary school teachers did not use divergent questions in their classroom. Another skill that many teachers' found not to have is the ability to use technology in their science teaching. Primary school teachers seldom use technology since many are inadequately trained to use technology in their teaching and require the necessary support (Deaudelin, Lefebvre, Brodeur, Dussault, Richer, & Mercier, 2005).

In addition, it was found that teachers' see the textbook as a good source of knowledge and rely heavily on the textbooks to help them teach science. Woodward and Elliott (1990) also found in their study that many teachers, especially primary school teachers base their lesson plans on students' textbook. However, textbook activities seldom allow students to formulate their own hypothesis and draw their own conclusions about a phenomenon (Harry & Rilero, 1994. Simply put, text books activities leads to the confirmation of scientific facts and principles instead of exploration and discovery of new knowledge) which is important for learning science. Such activities therefore dull the natural curiosity and adventurous

nature of primary school age students. In addition, many authors do not take students' social, economic, cultural and historical background into consideration and this may led to textbooks easily become irrelevant in this era of knowledge explosion. Some authors also use scientific jargons which makes it difficult for students' and teachers' to fully grasp the essence of the concepts and content. This leads to misinterpretations and misinformation by teachers and students.

Interestedly, the primary school teachers surveyed have acknowledged that they need professional developmental sessions to help them enhance their science instruction and knowledge. In Guyana, professional development sessions often come in the form of "one shot" workshops. Many times these workshops are done as formalities and there are never consultations with teachers to identify area of interest and needs. As such there is no psychological ownership and this has proven to be more detrimental than good to the delivery of science education. Shapiro (2006) in support suggested that there should be a shift away from short-term, one-shot teacher workshops, and a move to long-term professional development programmes which are needed to actually change experienced teachers' practical knowledge (Van Driel, Beijaard, &Verloop, 2001). Professional development opportunities must also take into account the need for time and the development of structures that allow for new social and personal constructions about what it means to be a teacher (Shapiro & Last, 2002).

**Recommendations**

1. A research study should be conducted to ascertain teachers' specific area of interest for continuous professional development sessions in science education.
2. University of Guyana, Cyril Potter College of Education (CPCE), Ministry of Education (MOE) and NECRD should work collaboratively to develop a formal policy for the implementation of continuous professional development in science education in Guyana.
3. Appropriate software, new technologies and modern Audio-Visual aids like multimedia should be developed, modelled and distributed by NCERD to be used by teachers to help teachers' with their instructions and enhance their knowledge in science.
4. Continuous professional development sessions should be organised by NCERD for teachers to gain experience in using the multimedia technologies. This will enable teachers to effectively these technologies into their science teaching.
5. University of Guyana, Cyril Potter College of Education (CPCE), Ministry of Education (MOE), NECRD and other Educational should develop a science text book for teachers since many teachers' rly the students' text as good source of knowledge. Hence this text book should be renewed every three (3) years to keep relevant.

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**Appendix 1 - Letter to Respondents**

September, 2015

Dear Educator,

I am currently working on a piece of research study. I would not go into detail about my research questions, so as not to influence your answers to the questions. I am asking you to please help me by filling out my questionnaire as truthfully as you can.

I assure you that your questionnaire answers will be completely confidential, and will only be used for my research.

My regards,

**Appendix 2: Questionnaire**

**Section A:** Please complete as accurately as possible.

**Grade Teaching:** **1** ☐ **2** ☐ **3** ☐ **5** ☐ **6** ☐ ☐

**Years of experience**: **1-** ☐ **4** ☐ **7-10** ☐ **11-15** ☐ **16- 35** ☐ ☐

**Teaching in Region:** ____ **Gender: M** ☐ **F** ☐

**SECTION B:** Please choose a response by placing a tick ( ✓ ) in the appropriate box where you see the words strongly agree, agree, disagree and strongly disagree.

| No. | **Items Description** | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| 1. | I can effectively teach science at the Primary level. | | | | |
| 2 | I am able to choose the most appropriate science strategy to suit the ability of my students. | | | | |
| 3 | I use science strategies in my classroom that will help students to discover new knowledge for themselves. | | | | |
| 4 | I use the scientific method of investigations in my science teaching. | | | | |
| 5 | I can effectively plan and carry out a science experiment. | | | | |
| 6 | I am able to effectively use the demonstration method with my students. | | | | |
| 7 | I am able to create and use improvised materials effectively in my science classroom. | | | | |
| 8 | I rely on students' science text books to teach science. | | | | |
| 9 | I use a lot of open ended questions in my science teaching. | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 10 | I need professional development to help me teach science. | | | | |
| 11 | I feel confident when I teach science. | | | | |
| 12 | I have sufficient knowledge of science concepts to teach the subject. | | | | |
| 13 | I understand the nature of science. | | | | |
| 14 | I can answer students' questions about science concepts effectively. | | | | |
| 15 | I am able to relate science concepts to everyday life. | | | | |
| 16 | I am competent in planning a good science lesson. | | | | |
| 17 | I am able to use my time effectively during my science lessons. | | | | |
| 18 | I use technology in my science teaching. | | | | |
| 19 | Students' science text book is good source of knowledge. | | | | |
| 20 | I would like professional development sessions to help me enhance my knowledge in science. | | | | |