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Research Article

Teachers' Soft Skills on Students' Science Process Capabilities and Academic Performance

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ABSTRACT

Purpose of the study: This study aimed to determine the influence of the teachers' soft skills on science process capabilities and academic performance of grade 11 students in public high schools in clusters IV and V during the S.Y. 2021 – 2022. This study also sought to determine the significant difference between the science process capabilities and academic performance of male and female grade 11 students in Earth and Life Science.

Methodology: Explanatory sequential research design was utilized. The respondents included 33 science teachers and 376 grade 11 students. Data were collected through validated surveys, observation checklists, academic records, and interviews. Analysis was conducted using statistical software for quantitative data and thematic review for qualitative responses.

Main Findings: Teachers strongly utilized their soft skills. Students demonstrated effective science process capabilities. Academic performance in Science was outstanding. No significant difference in science process capabilities between male and female students. However, female students performed better academically in Earth and Life Science. Moreover, significant positive relationships were found between teachers' soft skills and students' science process capabilities and academic performance.

Novelty/Originality of this study: This study highlights the impact of teachers' soft skills on both science process capabilities and academic performance in the new normal. Moreover, this study contributes to the limited empirical evidence linking teachers' soft skills with both science process capabilities and academic performance in the post-pandemic blended learning context, offering insights for enhancing teaching strategies and professional development in senior high school science education.

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1. INTRODUCTION

The pandemic has caused a massive shift in educational systems around the world. The government enacted measures to limit the number of people who congregate in public places, which disrupted the normal operation of schools and universities. In this situation, teachers face the challenge of ensuring that the students continue to learn whether teaching takes place inside the classroom or not. Besides, they must become more complex and competitive as education is constantly changing and adapting to the needs of the students. The

Department of Education (DepEd) stated that the blended learning approach in the delivery of basic education be implemented for the school year 2021-2022. Blended Learning, as defined by DepEd, refers to face-to-face with any or combination of online distance learning, modular distance learning, and TV/Radio-based Instruction. It is intended to allow schools to limit face-to-face learning, maintain social distance, and reduce the number of people outside the home at any given time [1], [2].

Regardless of the learning methods employed, school looks different during the COVID-19 pandemic. While some students seem to thrive with this method of learning, many students do not appear to be participating in it. Some students may not show up at all. Peer engagement is becoming more difficult in the current situation. The use of asynchronous methods means you can't predict the pace of a lesson anymore. The lack of physicality makes movement more challenging [3]. Meanwhile, the natural excitement and energy for the subject is harder to convey when students are not physically present. Moreover, teaching is an inherently physical job. But without an actual room, it is nearly impossible to "read the room." It is also challenging to get a sense of engagement in virtual meetings when everyone is in a different location with muted microphones [4], [5].

Moreover, students are struggling to learn during pandemic, especially in science. Mjority of science teachers reported struggling to include investigations and hands-on learning for students on remote platforms and considered the online format "not conducive to learning". It was mentioned as the most common challenge by teachers, along with difficulties in getting students to collaborate and discuss online [6]-[8]. Science subject is one of the shortcomings of the Filipino students. Even before the pandemic, the Philippines was experiencing an education crisis. In fact, as cited from the report of the Program for International Student Assessment (PISA) of the Organization for Economic Co-operation and Development (OECD) in 2018 that Filipino students score an average of 357 points in Science Literacy, which is significantly lower than the OECD average of 489 points [9], [10].

Given the Philippines' consistently low performance in international science assessments and the disruption of inquiry-based learning during the pandemic, examining non-cognitive teacher factors such as soft skills becomes critically urgent. Science education is one of the most important subjects in school due to its relevance to students' lives and the universally applicable problem-solving and critical thinking skills it employs and develops. These are life skills that enable students to generate ideas, weigh decisions intelligently, and even comprehend the evidence underlying public policy-making [11].

In accordance to this, educators had to adapt to the changes brought about by the new curriculum, particularly in Science, in order to produce holistically developed and globally competitive learners [12], [13]. The nature of science education involves students in scientific investigation. One of the most important fundamental skills in scientific inquiry is the ability to think through the scientific process a set of skills used in conducting scientific activities, producing and using scientific information, and problem solving is referred to as scientific process skills [14], [15]. Observing, classifying, communicating, measuring, inferring and predicting are among the thinking skills used by scientists, teachers and students when doing science [16], [17].

Correspondingly, science process skills concentrate on the learning process in order to develop students' abilities to comprehend knowledge or concepts, as well as independently discover and develop necessary facts, concepts, and values [18], [19]. In addition, science process skills are essential for the development of affective skills and have a significant impact on science education and the lives of students pursuing science education, influencing their achievement [15], [20]. In essence, these skills are crucial to science subjects of senior high school, particularly in Earth and Life Science. These equip students with the knowledge and skills to understand vital natural processes, tackle environmental and health challenges, and contribute to a sustainable future.

Meanwhile, it should be noted that a science teacher is considered someone intellectual, a nature lover, and with great interest in the world for the reason that they play an important role in making science interesting. Beyond classroom tasks, teachers are also given extra non-teaching functions, called as ancillary tasks, which contribute to their workloads [21], [22]. To perform these tasks effectively, soft skills are essential. Soft skills is defined as a collection of character traits, attitudes, habits, and manners that contribute to one's ability to work well with others and be a productive employee. Moreover, they either cannot be acquired or are notoriously hard to acquire through traditional education [23]-[25].

In addition, soft skills are a set of skills of fundamental importance in the performance of work activities; they are not technical or specific skills but are strongly related to personal qualities and attitudes and social and management skills. Some of them are difficult to recognize, quantify, evaluate, and develop due to their intangibility. Teachers must acquire such skills in order to successfully address various contextual situations. Soft Skills are necessary to interpret and understand complex situations, also in order to design training courses that enhance the personal qualities of the students [26]-[28].

Despite growing recognition of soft skills in teacher effectiveness literature, limited empirical studies have quantitatively examined their direct relationship with students' science process capabilities, particularly in senior high school science contexts. Moreover, there is a lack of evidence addressing this relationship within public high schools in the "new normal" educational setting, where soft skills may play a heightened role in learner engagement and performance.

In line with the given premises mentioned above, the researcher was motivated and undertook this research with the aim of determining the effect of the teachers' soft skills, in terms of communication, adaptability, problem solving, creativity and leadership, on students' science process capabilities, in terms of observing, classifying, measuring, communicating, inferring, and predicting, and academic performance in Earth and Life Science, in terms of third quarter grade. This study also determined if there is a significance difference between the science process capabilities and academic performance of male and female students for the school year 2021 – 2022. Furthermore, development of program of activities was also made based on the results of the study.

2. RESEARCH METHOD

This study utilized the mixed method of research, specifically explanatory sequential research design. It is a collection and analysis of quantitative data proceeds collection and analysis of qualitative data, which is used primarily to explain or expand quantitative results [29]. Moreover, this is a two-phased method where gathering of quantitative data was done first. Then, it was followed by the collection of qualitative data to further explain quantitative outcomes. In the conduct of the present study, the gathering of quantitative data was done through survey questionnaires. Through this survey, the effect of the teachers' soft skills on students' science process capabilities and academic performance in Earth and Life Science concerning the different sub-variables under these was obtained and measured based on their responses. The collected data was organized and interpreted. On the other hand, qualitative data was acquired through an interview. Open-ended questionnaires were utilized to gather data from selected senior high school teacher and student respondents.

Data collection was conducted in two distinct phases. Phase 1 is quantitative in nature while Phase 2 is for qualitative data gathering. In the phase I of the study, survey questionnaires were converted into google form. The survey questionnaire intended for the senior high school teacher-respondents is composed of two parts. Part I of the questionnaire is about the demographic profile of respondents. On the other hand, Part II of the questionnaire is about their soft skills. It is adapted from the study titled Bridging the Gap of Perceived Skills between Employers and Accounting Graduates in Malaysia [30]. Meanwhile, the questionnaire intended for the senior high school student-respondents is adapted from the survey titled Science Process Skills Inventory [31]. It deals with the academic performance of the students in science in the new normal in terms of the six science process skills. These parts of the questionnaire were modified by the researcher in order to fit the study.

In phase 2 of the data collection, open-ended questions which were personally made by the researcher were asked to the selected students and teacher respondents during the interviews through messenger and phone calls. The data gathered in this phase was used to further explain and support the quantitative findings of the study. This was done to arrive at a more comprehensive analysis of all the quantitative results of the study. The instruments utilized in this study underwent content validity through expert validation. The survey questionnaire and open-ended questions were reviewed by three science experts, to ensure the clarity and relevance of the item questions. Suggestions and revisions provided by the validators were incorporated to enhance the quality and ensure the accuracy of the instruments. In addition, cronbach alpha, computed through Statistical Package for Social Science (SPSS), was utilized to determine the internal reliability of the research instrument. The result of reliability test yielded a coefficient of 0.92, indication of good reliability.

The respondents of the study included the senior high school science teachers and Grade 11 students at the public high schools in Cluster IV and V of Schools Division Office of Pampanga. In choosing the respondents of the study, purposive sampling was employed for the teacher-respondents. 33 senior high school science teachers handling earth and life science subject from the schools in Cluster IV and V Pampanga were part of the teacher-respondents. Meanwhile, 10% of the total number of 3, 755 grade 11 students were chosen as respondents of this study. Generally, the number of respondents acceptable for a study depends upon the type of research involved - descriptive, correlational or experimental. For descriptive research the sample should be 10% of the population for a larger population as large as 1000 [32]. Hence, 376 grade 11 students served as the respondents.

Moreover, in depth analysis of the collected data, the researcher utilized both descriptive and inferential statistics. The following statistics were used to ensure accuracy and reliability in the analysis and interpretation of data: Descriptive statistics such frequency and percentage were utilized to describe the learners in terms of sex. Meanwhile, weighted mean was computed to describe the senior high school teachers' soft skills in terms of communication, adaptability, problem solving, creativity and leadership. In addition, this was also utilized to describe the senior high school students' science process capabilities in terms of observing, classifying, measuring, communicating, inferring and predicting. Moreover, frequency, percentage, range, mean and standard deviation were utilized to describe the students' academic performance in Earth and Life Science in terms of third quarter grade. On the other hand, inferential statistics such as correlation were used to determine the relationship between the teachers' soft skills and students' science process capabilities. This was also utilized to determine the significant relationship between the teachers' soft skills and students' academic performance in

Earth and Life Science. Moreover, independent sample t-test was utilized to determine the significant difference between the male and female students in terms of science process capabilities and academic performance.

3. RESULTS AND DISCUSSION

This section deals with the presentation, analysis and interpretation of the data collected and the results of the statistical treatment employed in the study with the purpose of describing the influence of the teachers' soft skills on science process capabilities and academic performance of grade 11 students in public high schools.

3.1. The Learners' Socio-Demographic Profile in Terms of Sex

Socio-demographics are nothing more than characteristics of a population. Generally, characteristics such as age, sex, ethnicity, education level, income, type of client, years of experience, location, etc. are being considered as socio-demographics and are being asked in all kinds of surveys. This study focused on the sex as demographic profile which refers to a set of biological attributes in humans. It is primarily associated with physical and physiological features including chromosomes, gene expression, hormone levels and function, and reproductive/sexual anatomy.

Table 1. Learners' Demographic Profile

Sex	Frequency	Percentage
Male	102	27.13
Female	274	72.87
Total	376	100.00

Table 1 presents the distribution of the grade 11 students when they are characterized according to sex. It can be seen from the table that majority or 72.87 percent of the respondents are female and only 27.13 are male. This result implies that female dominated the Grade 11 students in public senior high schools in Cluster IV and V of Pampanga. This may due to the fact that male students opted to stop their studies and help their parents to raise income for the family in order to survive in this pandemic time. This happen even in other country, such as Bangladesh. In fact, due to the economic crisis brought by pandemic, adolescent boys begin dropping out of school. When schools were closed, most families felt that sending their daughters to work was too much of a risk, but that sons might present an emergency source of income [33].

3.2. The Teachers' Soft Skills

Soft skills are a set of intrapersonal and interpersonal skills which equip teachers to develop their personality, enhance social participation, and consequently, contribute to workplace success [34]. These skills are personal competencies that are useful across most professions, including teaching. The relationship that teachers develop with their students is at the heart of teacher soft skills. The assessment of the teachers' soft skills in terms of communication, adaptability, problem-solving, creativity, and leadership are summarized in Table 2.

Table 2. Teachers' Soft Skills

Teachers' Soft Skills	Mean	Verbal Interpretation
Communication	4.45	Strongly Agree
Adaptability	4.50	Strongly Agree
Problem-Solving	4.46	Strongly Agree
Creativity	4.44	Strongly Agree
Leadership	4.48	Strongly Agree
Overall Mean	4.47	Strongly Agree

Table 2 presents the summary of the results of the teachers' soft skills in terms of communication, adaptability, problem-solving, creativity and leadership. The data reveals that teachers' soft skills has an overall mean of 4.47 and verbal description of "Strongly Agree". This implies that the teachers possess key competencies such as communication, adaptability, problem-solving, creativity and leadership. These skills are essential in effective teaching and learning processes.

The improvements of teachers' soft skills enhanced their work performance and led to better learning outcomes for their students [28],[35]. Moreover, these skills were significant on the academic achievement of the learners and school performance [36]. A good communication is crucial to teachers in which they must be proficient communicators to be able to transmit knowledge, skills, and values at the same time they communicate their care for the students [37]. They help students to be well- motivated.

In the current situation of teachers, they are dealing with a variety of work-related changes, including preparing and submitting various reports to superiors, attending webinars/ seminars, preparing lessons, presentations, and teaching students from various learning modalities, communicating with learners, parents and guardians, and others [38]. Thus, teachers must be adaptive to the activities and rapid changes in the workplace Science teachers should use relevant everyday events as a basis of science instruction that fosters interest and curiosity. This approach encourages students to take a more active role in figuring out how natural events work instead of being taught those lessons by an instructor [39].

In accordance with this, students' motivation is influenced by teachers' confidence in implementing new activities, however, they should be intertwined with school policy, lesson objectives, students' age, preferences, and level of proficiency [40]. Furthermore, the domain of teacher leadership fosters a collaborative culture to student learning. Working with students facilitates teachers' decision to better learning experiences for the students [41].

3.3. The Students' Science Process Capabilities

Science process capabilities describe how students cultivate their scientific literacy, that is how they acquire information about the world and order this information to increase the quality and standard of living [42]. The assessment of the grade 11 students' science process capabilities in terms of observing, classifying, measuring, communicating, inferring, and predicting are summarized in Table 3.

Table 3. Students' Science Process Capabilities

Teachers' Soft Skills	Mean	Verbal Interpretation
Observing	4.04	Agree
Classifying	4.01	Agree
Measuring	4.03	Agree
Communicating	3.99	Agree
Inferring	3.90	Agree
Predicting	3.88	Agree
Overall Mean	3.98	Agree

Table 3 presents the summary of the results of the students' science process capabilities in terms of observing, classifying, measuring, communicating, inferring, and predicting. The data reveals that students' science process capabilities has an overall mean of 3.98 and verbal description of "Agree". This implies that the students possess scientific skills such as communication, adaptability, problem-solving, creativity and leadership. These skills are the foundations for scientific inquiry and meaningful engagement in science education.

Science skills are essential to improve as they can help students to solve problems well and able to interact well with each other. Science process skill is one of the important skills possessed by students in studying science subjects. Excellent science process skills are believed to be able to help students understand scientific concepts easily and correctly [43],[44].

Observation can be done through the senses or through the use of tools such as magnifying glasses, thermometers, satellites, and stethoscopes. These instruments enable more precise and accurate observations. Tools also assist in gathering information about things that are beyond our ability to experience firsthand [45]. Classifying skills develop throughout primary and secondary education as students. Due to being exposed to a variety of objects and events, students gain more experience and tend to notice finer details [46]. Senior high school students are familiar and knowledgeable on how measurement tools are used in science activities. Teachers' curriculum assessment and pedagogies in carrying out science instruction facilitate students in improving their accuracy, precision, and reliability in employing measurements [47].

The findings also explain how students' appreciation to the role of models capacitates them to construct personal mental models for different scientific concepts [48]. Thus, they utilize strategic ways on how their ideas are better represented. In terms of inferring, students are skilled on how to interpret data gathered from a scientific inquiry. They gain scientific self-efficacy or their perception of their ability to perform research-related tasks, and scientific identity when analyzing their own data as they recognize their own disposition [49]. Furthermore, through a discussion method employed, teachers carry out learning activities as students interact and practice mastering concepts. This enables them to make better predictions as they first establish an understanding of the concepts provided during discussions [50].

3.4. The Students' Academic Performance

Table 4 presents the academic outcomes of the public elementary school pupils which were based on their grades in the second grading period, S.Y. 2021-2022.

Table 4. Students' Academic Performance

Grade	*f* (N=376)	Percent	Verbal Description
90 and above	228	60.64	Outstanding (O)
85 – 89	100	26.60	Very Satisfactory (VS)
80 – 84	42	11.17	Satisfactory (S)
75 – 79	6	1.60	Fairly Satisfactory (FS)
74 and below	0	0.00	Did Not Meet Expectations (DNE)
Range			78 – 99
Mean			90.06
Verbal Description			Outstanding
Standard Deviation			4.78

It can be noted from the table that majority or 60.64 percent of the senior high school students registered grades of 90 and above which is verbally described as "outstanding". On the other hand, 26.60 percent of the students received grades that ranged from 85 to 89 which is verbally interpreted as "very satisfactory". Meanwhile, 11.17 percent obtained grades that lie within the bracket of 80 to 84 with a verbal description of "satisfactory". The remaining 1.60 percent got grades that lie within the bracket of 75 to 79 with a verbal interpretation of "fairly satisfactory".

Further perusal of the tabulated data reveals that the grades of senior high school students ranged from 78 to 99 and above. The mean was calculated at 90.06 (outstanding) while the standard deviation the measures the spread of the students' grades from the mean was registered at 4.78. These results disclose that 376 respondents received grades that lie within the bracket of 78 to 99. Additionally, the findings of the study imply that although most students are doing their school tasks on their own, they were able and managed to understand all the lessons clearly which resulted in high academic achievement.

On the contrary, science teachers indicate that there will be a likely drop in the performance levels of the students during the pandemic. This is most likely to be caused by reduced contact hours for learners to the extent that they will largely not be able to consult teachers on the difficulties they encounter during their individual studying time [51]. Despite the negative effect of the pandemic, teachers are stepping up their preparedness by bringing in pedagogical strategies aimed at ensuring the quality of education for students.

3.5. The Difference between the Male Students and Female Students' Science Process Capabilities and Academic Performance

In this part of the study, table 5 presents the results of the t-test analyses which were done to determine if significant difference existed between the male and female students' science process capabilities and academic performance in Earth and Life Science.

Table 5. Results of the t-test Analyses

Item	Mean		Mean Difference	t-value	p-value
	Male	Female			
Science Process Capabilities	3.91	4.00	-0.09	-1.56	0.119
Academic Performance	88.44	90.66	-2.22	-4.08**	0.000

It can be noticed from the table that highly significant difference was found between the academic performance of male and female students. This highly significant difference was brought about by the fact that the computed probability value of 0.000 for these variables is less than the 0.01 significance level. Results also showed that female students performed better as compared to male as manifested by the computed mean of 90.66 for female and 88.44 for male.

These results imply that female students are more focused and engaged to their studies which resulted to higher academic performance in Earth and Life Science subject. Male students found information quality to be a significant factor on perceived academic performance, but not perceived learning enjoyment; on the contrary, their female counterparts found it to be significant on influencing perceived learning enjoyment. Moreover, female students perceived system quality to be influential on their learning enjoyment and support service quality to be influential on their academic performance. These effects are not observed among male students [52].

Meanwhile, no significant difference was found between the students' Science process capabilities when they are grouped according to sex. This implies that the instructional strategies used in the learning environment have equal effect to all genders. Moreover, this may also suggested that development of science process skills in more influences by factors other than sex. Many studies confirmed and contrasted the results of

this study, however, these results allow other researchers to explore this particular area to add more references for future utilization and comparison [53].

3.6. The Relationship between the Teachers' Soft Skills and Students' Science Process Capabilities

Table 6 summarizes the results of the correlation analysis which was performed to determine if significant relationship existed between the teachers' soft skills and students' science process capabilities.

Table 6. Results of the Correlation Analysis on the Relationship between the Teachers' Soft Skills and Students' Science Process Capabilities

Students' Science Process Capabilities	Teachers' Soft Skills				
	Communicating	Adaptability	Problem Solving	Creativity	Leadership
Observing	0.699** (0.000)	0.577** (0.000)	0.619** (0.000)	0.529** (0.000)	0.507** (0.000)
Classifying	0.708** (0.000)	0.478** (0.000)	0.563** (0.000)	0.577** (0.000)	0.587** (0.000)
Measuring	0.633** (0.000)	0.369** (0.008)	0.429** (0.003)	0.501** (0.000)	0.487** (0.000)
Communicating	0.747** (0.000)	0.584** (0.000)	0.576** (0.000)	0.637** (0.000)	0.833** (0.000)
Inferring	0.543** (0.000)	0.418** (0.006)	0.539** (0.000)	0.500** (0.000)	0.633** (0.000)
Predicting	0.618** (0.000)	0.578** (0.000)	0.619** (0.000)	0.472** (0.000)	0.731** (0.000)

** highly significant ($p \leq 0.01$)
Numbers in the upper entry are correlation values (r-values)
Numbers enclosed in parentheses are probability values (p-values)

It can be noted from the table that highly significant relationship was found between teachers' soft skills in terms of leadership and students' Science process capabilities in terms of communicating ($p=0.000<0.01$). Perusal of the table reveals that significant relationship was found between teachers' soft skills in terms of communication, adaptability, problem solving, creativity and leadership and students' Science process capabilities in terms of observing, classifying, measuring, communicating, inferring and predicting. Further examination of the table shows that direct relationship existed between these variables as implied by the positive sign of the correlation values that ranged from 0.369 to 0.833. These findings disclose that as the level of teachers' soft skills in terms of communication, adaptability, problem solving, creativity and leadership increases, the level of students' Science process capabilities in terms of observing, classifying, measuring, communicating, inferring and predicting also increases. This highly significant relationship is manifested by the computed probability values that ranged from 0.008 to 0.000 for these variables which are less than the 0.01 significance level.

Results of the analysis imply that teachers who can communicate effectively, adapt in uncertain situations, use the problem-solving approach, model creative ways of thinking, and manage the classroom well will enable students to do well in Science in the areas of observing, classifying, measuring, communicating, inferring and predicting. In accordance to the present findings, soft skills significantly influence the academic achievement of students to a high extent. It was recommended among others that government, school administrators, and all stakeholders should ensure that the development of soft skills among teachers is a major concern to ensure the enhancement of students' academic achievement and guaranteed success of their chosen careers [54].

3.7. The Relationship between the Teachers' Soft Skills and Students' Academic Performance

Table 7 displays the results of the correlation analysis which was performed to determine if significant relationship existed between the teachers' soft skills and students' academic performance in Earth and Life Science.

Table 7. Results of the Correlation Analysis on the Relationship between the Teachers' Soft Skills and Students' Academic Performance

Teachers' Soft Skills	Students' Academic Performance
Communication	0.7556** (0.0000)
Adaptability	0.6981** (0.0000)
Problem Solving	0.5874** (0.0000)
Creativity	0.8412** (0.0000)
Leadership	0.3458** (0.0038)

** = highly significant (p≤0.01)
Numbers in the upper entry are correlation values (r-values)
Numbers enclosed in parentheses are probability values (p-values)

It can be observed from the table that highly significant relationship was found between teachers' soft skills in terms of communication, adaptability, problem solving, creativity and leadership and students' academic performance. This highly significant relationship is manifested by the computed probability values that ranged from 0.0038 to 0.0000 for these variables which are less than the 0.01 significance level. Further observation of the tabulated findings showed that direct relationship existed between the aforementioned variables as indicated by the computed correlation values that ranged from 0.3458 to 0.8412. These results mean that as the level of teachers' soft skills in terms of creativity increases, the level of students' Science process capabilities in terms of communication, adaptability, problem solving, creativity and leadership increases, the level of students' academic performance also increases.

These results imply that teachers who have the ability to communicate effectively, build and lead teams or groups, adapt to volatile environments, use resources effectively and creatively, effectively present persuasive arguments and motivate oneself and others can successfully influence the academic performance of their students. Similar to the present findings, teachers who are perceived as 'excellent' exhibit superior intrapersonal behavioral, interpersonal conceptual, and interpersonal affective soft skills can positively influence the students' academic performance [55]. In a similar vein, previous study indicated a significant relationship between teachers' soft skills and students' proficiency level and school performance in the Philippines [36].

3.8. Thematic Summary

The table below provides the thematic summary of the interview conducted for teachers and students respondents.

Table 8. Thematic Summary of Interview

Category	Summary of Responses
Teachers' Strong Soft Skills Across Core Competency Areas	Teachers perceived theirselves to possess very high levels of soft skills. They reported that these skills are foundational to effective teaching, especially in dynamic and challenging learning environments.
Students' Science Process Capabilities Essential for Scientific Inquiry	Students demonstrated satisfactory science process capabilities. They reported that these skills indicate a functional level of scientific literacy and readiness for inquiry-based learning.
High Academic Performance Despite Pandemic-Related Constraints	The majority of students attained outstanding academic performance in Earth and Life Science, with a high overall mean grade. This outcome highlights learners' resilience and adaptability, as well as the effectiveness of teachers' instructional strategies despite reduced face-to-face interaction and other pandemic-related challenges.

Thematic analysis revealed that teachers perceived that they possess very high levels of soft skills which are essential in times of dynamic and challenging learning environments. They argue that these must possess these skills since they are exposed to different situations to which there will be a diverse group of people to who the teacher should collaborate with. Moreover, teaching Science in the new normal is even more complex because they have to discuss their lessons in detail as much as they can to avoid misinterpretation among

students because teachers have only limited interactions with students. Thus, coping with the current situation is a must to help the learners continue learning. It is recognised that teachers require resilience in order to cope with the challenging demands of teaching and to support retention, commitment, and teacher wellbeing [56]. A previous study found that mindful awareness training is effective in the development of teachers' resiliency levels, which helps teachers to boost their confidence in facing pandemic crises like COVID-19 [57].

Meanwhile, majority of students possessed satisfactory science process capabilities. The findings affirm that learners are able to engage meaningfully in scientific tasks when supported by appropriate pedagogy and instructional scaffolding. These skills can be influenced by the level of students' understanding of the concept and scientific process, experience in observing, and doing all scientific process [58]. Moreover, majority of the students obtained outstanding academic performance in Earth and Life Science. These results highlight the students resilience and adaptability, and teachers effective utilization of instructional strategies despite of challenges brought by pandemic.

3.9. Proposed Intervention/s or Program of Activities

Results of this study revealed that the science senior high teachers' soft skills influenced the grade 11 students' science process capabilities and academic performance. Hence, as presented on Table 9, the researcher proposed an action plan to assist students in improving their science process capabilities.

Table 9. Proposed Intervention/s or Program of Activities Crafted Based on the Findings of the Study

Objectives	Action	Timeline	Person Involved	Expected Output
To improve the students' science process capabilities in terms of observing.	Conduct activities in which the learners can use their senses.	Every Friday of First Quarter of Academic Year 2022-2023	Researcher, SHS Science Teachers, Students	Worksheet/ Portfolio of Observational Activities
To improve the students' science process capabilities in terms of classifying.	Conduct audio-visual activities showing the similarities and differences of groups/ situations.	Every Friday of First Quarter of Academic Year 2022-2023	Researcher, SHS Science Teachers, Students	Worksheet/ Portfolio which enhance the classifying skills of the students
To improve the students' science process capabilities in terms of measuring.	Create activities which involves measuring of different quantities.	Every Friday of Second Quarter of Academic Year 2022-2023	Researcher, SHS Science Teachers, Students	Worksheet/ Portfolio of Measuring Activities
To improve the students' science process capabilities in terms of communicating.	Conduct laboratory experiment.	Every Friday of Third Quarter of Academic Year 2022-2023	Researcher, SHS Science Teachers, Students	Portfolio of Laboratory Activities and Narrative Reports
To improve the students' science process capabilities in terms of inferring.	Conduct laboratory experiment.	Every Friday of Third Quarter of Academic Year 2022-2023	Researcher, SHS Science Teachers, Students	Portfolio of Laboratory Activities and Narrative Reports
To improve the students' science process capabilities in terms of predicting.	Conduct laboratory experiment.	Every Friday of Fourth Quarter of Academic Year 2022-2023	Researcher, SHS Science Teachers, Students	Portfolio of Laboratory Activities and Narrative Reports

4. CONCLUSION

Based on the findings of the study, the following conclusions were drawn: Findings revealed that majority of the student respondents are female.The teachers strongly agreed that they were able to utilize their

soft skills in terms of communication, adaptability, problem-solving, creativity, and leadership during the new normal.Meanwhile, the senior high school students agreed that they were able to utilize their science process capabilities in terms of observing, classifying, measuring, communicating, inferring and predicting in the new normal. The academic performance of the senior high school students in Science in the new normal was described as "outstanding". There is no significant difference between the science process capabilities of male students and female students. The science process capabilities of the students regardless of their sex are the same. However, there is a significant difference between the academic performance of male students and female students in Earth and Life Science. Female students performed better as compared to male. Moreover, there is a significant relationship between the teachers' soft skills and students' science process capabilities. The more the teachers utilized their soft skills, the higher is the level of students' science process capabilities. Similarly, there is a significant relationship between the teachers' soft skills and students' academic performance. The more the teachers utilized their soft skills, the higher is the level of students' academic performance.

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AUTHOR CONTRIBUTIONS

Conceptualization, Methodology, Formal Analysis, Investigation, Resources, Data Curation, Writing-Original Draft Preparation, & Visualization, JPM.

CONFLICTS OF INTEREST

The author(s) declare no conflict of interest.

USE OF ARTIFICIAL INTELLIGENCE (AI)-ASSISTED TECHNOLOGY

The authors declare that no artificial intelligence (AI) tools were used in the generation, analysis, or writing of this manuscript. All aspects of the research, including data collection, interpretation, and manuscript preparation, were carried out entirely by the authors without the assistance of AI-based technologies.

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