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Extent of the Psycho-socio Factors to the Students' Academic Performance in Science: Towards the Enhancement of a Social Learning Curriculum for Children

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Abstract
The term psycho-social describes how psychological and social facets of human experience are connected. It explains how a person's cognition, affect, and behavior are frequently manifestations of the society or culture in which they were raised. This descriptive-quantitative study aims to ascertain the degree to which psycho-socio-economic factors have an impact on the academic performance of science students. The data from the standardized instrument showed that students believe the four psycho-social elements are crucial to their academic success in science subjects. Particularly, the immediate family's financial and moral support received the greatest mean score, followed by students' academic development, the learning environment, and lastly science concepts, which received the lowest mean score. Therefore, it is advised that enhancing scientific student academic performance cannot solely be credited to the curriculum and extracurricular activities that the school arranges for the students. This study also teaches us that early education must include the enhancement of a social learning curriculum. The fact that psychosocial theory offers a broad framework from which to view development across the entire lifespan is one of its advantages. Additionally, it enables us to emphasize the social aspect of people and the significance of social ties in shaping growth.
Keywords: psycho-socio factors, academic performance, science, social learning, curriculum, children

Introduction

Many times students express difficulties with the courses they are studying or enrolled in. The frequently reported problems in literature are difficulty of students in organizing study time effectively, overloaded with vast studying material, decreased motivation, difficulty in recalling previously acquired knowledge and difficulty in applying acquired knowledge to practical situations. Learning ability in the current medium of instruction, cultural and values expectations concerning achievement and lifestyle factors requiring adjustment in the new environment may also affect the student's performance directly or indirectly, through their influence on learning process. This may also be true to learning any science subjects (Treagust, Duit and Fraser, 1996; Nieswandt, 1999).

Urien (2003) conducted a study on the determinants of academic performance of HEC-Laussance graduates. The study analyzes econometrically the relationship between different variables and the average grade obtained in their subjects by 156 students. The findings of the study suggest that a large number of different factors related with the personal and family background, with the work and study discipline and with the type of degree interact together in order to explain the variation of the students' performance.

Andrew (2000) revealed that nursing students have traditionally experienced difficulties with the science subjects in nursing curricula, and irrespective of the institution. The research has employed an instrument called the Self-Efficacy for Science (SEFS). This instrument was developed for this purpose and was tested. The SEFS was designed to predict academic performance in science areas of a first-year undergraduate nursing course. A cohort of first-year students enrolled in a Bachelor of Nursing course

surveyed by the questionnaire. Findings revealed that students' academic scores for two first- year science subjects were not statistically significant as well as not significantly related to SEFS.

The study of Golding (2003) has emphasized the importance of matriculation increases at each level of academia, with the greatest significance placed at the tertiary level. The task of standardizing entry-level requirements at the tertiary level has led to the implementation of assessments such as SAT, GMAT, and GRE. This study examines the relationship between students' overall academic performance (GPA) and matriculation requirements performance in first year courses in the Bachelor of Science and Information Technology (BSCIT) program at UTECH. The findings pointed out that academic performance in first year gateway courses had some level of significance in predicting performance.

The study of Hough, Oswald, & Ployhart (2001) and Sackett, et. al. (2001) emphasized that if the criterion domain of students' performance in science is broader and more complex than traditionally conceived and measured, then this in turn implicates broader and more complex combinations of individual abilities and characteristics that predict performance.

In Zamboanga State College of Marine Sciences and Technology (ZSCMST) the selection system for college admissions typically use standardized tests of verbal and mathematical skills, and possibly records of achievement in specific subject matter areas. This is also the start of evaluating and assessing of performance of the "would-be" students. Such system have worked well for many years and even now, especially in comparison with alternatives that have been used or considered since the school is already an ISO certified academic institution.

Over the years, also, as a science teacher, the researcher had noticed the poor academic performance of students in science subjects particularly General and Inorganic Chemistry and Biological Science. With great intent and enthusiasm, the researcher would like to study on the psycho-socio factors that would determine or predict the success of the students in the aforementioned subjects.

Related Literature and Studies

The study was anchored on the Theory of Community of Practice pioneered by the Institute of Research on Learning and the Social Cognition Learning Model by Vygotsky.

On one hand, the Community of Practice has the following assumptions: learning is fundamentally a social phenomenon. People organize their learning around the social communities to which they belong. Therefore, schools are only powerful learning environments for students whose social communities coincide with that school; real knowledge is inseparable from practice. In other words, it is not possible to know without doing. People learn by doing; empowerment of the ability to contribute to the community creates the potential for learning: circumstances in which students engage in a real action create the most powerful learning environment. Furthermore, this theory suggests that educators structure learning opportunities that embed knowledge in both work practices and social relations - for example apprenticeships, school-based learning, service learning and others (Institute for Research on Learning, 1998-2001).

On the other hand, the social cognition learning model asserts that culture is the prime determinant of individual development. Humans are the only species to have created culture, and every human child develops in the context of a culture. Therefore, a child's learning development is affected in ways large and small by the culture-including the culture of family environment in which he or she is enmeshed (Vygotsky, 1962 & 1978).

Furthermore, this learning model has the following assumptions: culture makes two sorts of contributions to a child's intellectual development. First, through culture children acquire much of the content of their thinking, that is, their knowledge. Second, the surrounding culture provides a child with the processes or means of their thinking, what Vygotskians call the tools of intellectual adaptation. According to the social cognition learning model, culture teaches children both what to think and how to think. Cognitive development results from a dialectical process whereby a child learns through problem-solving experiences shared with someone else, usually a parent or teacher but sometimes a sibling or peer. Initially, the person interacting with child assumes most of the responsibility transfers to the child. Language is a primary form of interaction through which adults transmit to the child the rich body of knowledge that exists in the culture. As learning progresses, the child's own language comes to serve as her primary tool of intellectual adaptation. Eventually, children can use internal language to direct their own behavior. Internalization refers to the process of learning and thereby internalizing a rich body of knowledge and tools of thought that first exist outside the child. This happens primarily through language. A difference exists between what child can do on her own and what the child can do with help. Vygotskians call this difference the Zone of Proximal Development. Since much of what a child learns comes from the culture around her and much of the child's problem-solving is mediated through an adult's help. it is wrong to focus on a child in isolation. Such focus does not reveal the processes by which children acquire new skills. Interactions with surrounding culture and social agents, such as parents and more competent peers, contribute significantly to a child's intellectual development.

Research Objective

Determine the extent of the psycho-socio factors to the performance of the students in science in terms of their academic formation.

Methodology

This study is a descriptive-quantitative type of research employing documentary analysis. The study is focused on the perceptions of selected students presently enrolled in science subjects as regards to the different psycho-socio factors that can influenced their academic performance in those subjects. It was conducted across colleges of Zamboanga State College of Marine Sciences and Technology. The study was conducted across colleges of the Zamboanga State College of Marine Sciences and Technology. This school is located by the seashore of Fort Pilar, Barangay Rio Hondo, and Zamboanga City. This school is divided into different colleges. Specifically, the courses involve in this study are the following: Bachelor of Science in Aquaculture (BSA), Bachelor of Science in Fisheries (BSFI), Bachelor of Science in Marine Biology (BSMB), Bachelor of Secondary Education major in Technology and Livelihood Education (BSEd- TLE), Bachelor of Secondary Education major in Physical Science and Biological Science (BSEd-PS and BSEd-BS), and Bachelor of Science in Food Technology (BSFT), and Bachelor of Science in Fisheries Post-Harvest Technology (BSPHT).

The respondents of this study were the students taking General and Inorganic Chemistry and Biological Science, respectively, during the first semester of the school year 2014-2015. General and Inorganic Chemistry is offered first semester in the following courses: BSA, BSMB, and BSFI while Biological Science is being offered in BSED - TLE. Other courses under study (to include BSEd - Physical Science and BSE - Biological Science and BSFT) take both General and Inorganic Chemistry and Biological Science simultaneously.

Purposive sampling was utilized in this study, particularly for the selection of colleges since only those colleges having basic science subjects were considered. While total enumeration was considered in determining the number of respondents per college since the number of students enrolled per course is only few.

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This study made use of a research instrument in a form of a checklist containing the four psycho-socio factors namely: academic formation of students; financial and moral support from immediate families; science principles; and learning environment.The research instrument is composed of Part I and Part II. Part I include the profile of the student - respondents in terms of course and subjects being taken during the specified school year. Part II contains questions related to the Psycho-Socio Factors in science subjects. There were five questions for the following sub-headings: Academic Formation of Students; Financial and Moral Support from Immediate Families; Science Principles, and Learning Environment.

Results and Discussions

On the Extent of the Psycho-Socio Factors to the Performance of the Students in Science in terms of their Academic Formation

Table 1. to table 5. show the mean score and verbal description of each statement in each category of the identified psycho-socio factors. In particular, table 3 reveals the data pertaining to the extent of the academic formation of students to their performance in science subjects taken. From the table it can be gleaned that the academic formation of students has great extent to the academic performance of the student-respondents as evident in the grand mean of 3.99. Of the five statements in this category, the statement that says "The curricular activities of the subject had encouraged and prepared me to face the challenges expected of my course." got the highest mean score of 4.05 which is interpreted as great extent.

Table 1. Extent of the Psycho-Socio Factors to the Performance of the Students in Science in terms of their Academic Formation

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Academic Formation of Students	Mean	Verbal Description
1. My skills and talents are enhanced by the lessons and activities planned and implemented by the subject teacher	**3.99**	Great Extent
2. The activities and events scheduled by the school as part of my co-curricular preparation motivate my attention and creativity	**3.97**	Great Extent
3. My academic formation prepares me to become a competent, authentic, and morally-upright professional	**3.92**	Great Extent
4. The curricular activities of the subject had encouraged and prepared me to face the challenges expected of my course	**4.05**	Great Extent
5. The faculty, administrative and support staff guided me in my academic endeavor	**4.00**	Great Extent
Grand Mean	**3.99**	**Great Extent**

Legend:

1.00-1.50 - Very Low Extent
1.51-2.50-Low Extent
2.51-3.50-Moderate Extent
3.51-4.50-Great Extent
4.51-5.00-Very Great Extent

This result could imply that students find the curricular activities prepared by the science teachers and the department or institute as a whole, meaningful and relevant to their course. Part of the students' curricular activities is the on- the-job training and the practicum where students are exposed to real world of their courses. According to Robbins, Lauver, Le, Davies, Langley, & Carlstorm (2012) learning activities that provides helpful experiences to students' future professional endeavor are meaningful, thus affect students' behavior and performance inside the class.

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Table 2. also shows the extent of the financial and moral support from immediate families to the performance of the student-respondents in science subjects taken.

It can be gleaned from the table that students find this category as having great extent to their academic performance in science subjects as evident in the grand mean of 4.40. Of the five statements in this category, the statement that says, "My family serves as my inspiration and breathe in finishing my course." got the lowest mean score of 4.28. Furthermore, the statement that got the highest mean score of all the statements in this category says "My parents are always there to support my financial needs. This result could imply that the family plays a very significant role in the student's life. Even if the family has no enough means to financially support their students, their moral support is a great inspiration for the students to continue to hope and survive in their studies. In other words, the family's moral and financial support to their students plays a great impact for them to finish their studies. This observation is supported by the study of Nakajima (2014), stating that family affects the educational outcome of children.

Table 2. Extent of the Psycho-Socio Factors to the Performance of the Students in Science in terms of their Financial and Moral Support from Immediate Families Financial and Moral Support from Immediate Families

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Financial and Moral Support from Immediate Families	Mean	Verbal Description
1. My parents are always there to support my financial needs.	**4.48**	Great Extent
2. My parents, brothers, and sisters are there to boost my spirit every time I feel like giving up.	**4.47**	Great Extent
3. I am happy that my family understands the requirements and demands of my course.	**4.36**	Great Extent
4. My family encourages me with enthusiasm to pursue and complete my studies even with little financial support.	**4.38**	Great Extent
5. My family serves as my inspiration and breath in finishing my course.	**4.28**	Great Extent
Grand Mean	**4.40**	**Great Extent**

Legend:

1.00-1.50-Very Low Extent
1.51-2.50-Low Extent
2.51-3.50-Moderate Extent
3.51-4.50-Great Extent
4.51-5.00-Very Great Extent

Table 3. shows the extent of the psycho-socio factors to the performance of the student-respondents in the science subjects taken in relation to science principles.

The table reveals that students, just like the first two categories, find all the statements as having great extent to their academic performance in science subjects. However, the grand mean score 3.92 is lower than the first two and the lowest of the four categories. Of the five statements in this category, the statement that say, "I find the scientific principles interesting but difficult; however, have challenged me to improve my performance." yielded the lowest mean score of 3.89 which is interpreted as great extent. This data could imply that although students find scientific principles difficult, it is, for them, at the same

time interesting and challenging for it encouraged them to think critically, perform better, and to improve their academic performance.

Table 3. Extent of the Psycho-Socio Factors to the Performance of the Students in Science in terms of their Science Principles

Science Principles	Mean	Verbal Description
1. I have experienced difficulty in understanding the science concepts being conveyed by the teacher.	**3.96**	Great Extent
2. The examples and applications of science principles during discussions are relevant to my needs.	**3.95**	Great Extent
3. Information is gathered through the use of the human senses and various instruments such as magnifying lenses, microscopes, thermometers, scales and balances.	**3.91**	Great Extent
4. Written narratives are used to describe an observed scientific phenomenon and analyze its implications.	**3.91**	Great Extent
5. I find the scientific principles, interesting but difficult; however, have challenged me to improve my performance	**3.89**	Great Extent
Grand Mean	**3.92**	**Great Extent**

1.51-2.50-Low Extent *4.51-5.00-Very Great Extent*
2.51-3.50-Moderate Extent

The statement in this category that got the highest mean score of 3.96 says "I have experienced difficulty in understanding the science concepts being conveyed by the teacher." This could imply that the science teachers as well as the subject matter being taught maybe new to the students. This could also mean that the prior knowledge of the student in the scored concept being introduced must be diagnosed before getting into a discussion with more difficult concepts. According to Vahlia (2013), students' prior knowledge must be considered in the presentation of more complicated and conflicting ideas in science.

Table 4. shows the extent of the psycho-socio factors to the performance of the student-respondents in the science subjects taken in relation to learning environment.

It can be gleaned from the table that students just like the first three categories, find learning environment as having great extent to their academic performance in science. This could imply that learning environment of the school plays a role in the students' motivation to learn or not to learn; to perform or not to perform in a particular academic endeavor. This result is also supported by the study of Higgins, Hall, Wall, Woolner, & McCaughey (2004). According to the authors, learning environment, especially in science courses, to include facilities, equipment and space are significant in the success of the students academically.

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Table 6. Extent of the Psycho-Socio Factors to the Performance of the Students in Science in terms of their Learning Environment

Learning Environment	Mean	Verbal Description
1. The school provides me with a conductive learning environment.	**3.99**	Great Extent
2. The school provides me with up-to-date facilitates to enhance my knowledge and skills.	**3.99**	Great Extent
3. There enough learning materials for research and further studies.	**3.94**	Great Extent
4. Equal access and opportunity to technology and services are provided by the school for knowledge application.	**3.96**	Great Extent
5. The overall learning environment is evidently functional and real. It has contributed to my knowledge and experience.	**3.40**	Great Extent
Grand Mean	**3.96**	**Great Extent**

Legend:

1.00-1.50 - Very Low Extent
1.51-2.50-Low Extent
2.51-3.50-Moderate Extent
3.51-4.50-Great Extent
4.51-5.00-Very Great Extent

Table 5. reveals the summary of the perception of the student-respondents in all the psycho-socio factors in relation to their performance in science subjects.

From the summary table it can be seen that financial and moral support from immediate families got the highest mean score of 4.40, followed by academic formation of students, then learning environment and finally, science principles. The result could imply that the family plays the most significant or important role in relation to the students' academic performance in science subjects, followed by the other elements or components and services being prepared and offered by the school, in general; and in particular, the course where they are enrolled in. Components such as the curriculum, the facilities, the academic and non-academic staff and others could develop the
full potential of students of students but without the inspiration and strong family support, students would not be able to finish their studies.

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Psycho-Socio Factors	Mean	Verbal Description
Academic Formation of Students	3.99	Great Extent
Financial and Moral Support from Immediate Families	4.40	Great Extent
Science Principles	3.92	Great Extent
Learning Environment	3.96	Great Extent
Grand Mean	**4.07**	**Great Extent**

Table 5. Summary of the Extent of the Psycho-Socio Factors to the Performance of the Students in Science

Legend:

1.00-1.50 - Very Low Extent
1.51-2.50-Low Extent
2.51-3.50-Moderate Extent
3.51-4.50-Great Extent
4.51-5.00-Very Great Extent

According to study conducted by Kim (2008), there is a strong relationship between parental influences and children's educational outcomes, from school readiness to college completion. Furthermore, two compelling parental factors emerge: family structure and parent's involvement in their children's schoolwork.

Conclusions and Recommendations

Academic performance is the measurement of student achievement across various academic subjects. Although, studies shown that a lot factors affect the academic performance of the students, psycho-socio factors cannot be denied to be one. In this study, tha data revealed that students find the four psycho-

socio factors as having great extent to the students' academic performance in science subjects. Specifically, financial and moral support from immediate families got the highest mean score, followed by the academic formation of students then learning environment, and finally science principles got the lowest mean score. Thus, it is being recommended that improving the academic performance of the students in the sciences could not be only attributed to the curriculum and curricular activities the school prepared for the students. The schools could also consider non-academic factors in the preparation of their students' professional training. This study also suggests that lessons presented in chemistry should make the student learn it as much as enjoy the subject. Since most students find chemical concepts difficult maybe it could be presented taking into consideration the learning styles of the students.

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