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Editor-in-Chief: **José Gómez Galán**

International Journal of Educational Excellence

DESCRIPTION

The *International Journal of Educational Excellence* (ISSN 2373-5929) is a multidisciplinary scientific journal which main objective is the dissemination of studies that provide answers to the main educational scientific and social problems present in higher education, in order to achieve excellence quality in all their areas. Papers will be welcomed, regardless of the subject area to which they belong as long as they entailed a contribution, innovation or breakthrough in the development of models of teaching or scientific research in the scientific world which lead to a social improvement. Research work performed in other educational levels may also be considered, if they demonstrate a strong and justified relationship to higher education. All papers submitted for publication must be unpublished and originals, and should not be under any evaluation procedure for publication in other journals. Theoretical work as well as work based on field studies and empirical laboratory experiments are accepted. All kinds of strategies and methodological approaches may have been used for the study. They have to comply within the parameters of current scientific and technological research. The review criteria and selection process will take into account mainly the quality of the work under consideration: if it makes a significant contribution to the object of interest, main interests of the journal and if it offers a breakthrough or significant contribution to the current scientific knowledge and, ultimately, if it contributes to the progress of our society. This journal is of free and direct access (Open Access, OA), and it serves the international scientific community and open knowledge.

The journal is digitally published in order to keep all the features of traditional print journals. Articles will appear in PDF format, conveniently typeset and numbered as classical style journals. Therefore, it is our intention to facilitate their distribution and their scientific citation in accordance with all existing highest standards. Additionally, for the reader's convenience chapters of the book can be printed in their full version as well as can be accessed in this digital format, such as e-book. This publication takes advantage of newly implemented technologies in order to facilitate publishing and distribution, at the same time that takes into account the ecological aspect of paperless publishing. Nor can we forget the specific possibilities offered by electronic publishing, such as the quick and easy access to any item of each number by simply selecting it from the start index or by identifying hyperlinks that can be added by the authors to their articles.

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Original submissions to the *International Journal of Educational Excellence* (IJEE) will be reviewed by external referees, a process known as peer review. Reviewers are academics and researchers who are experts in the corresponding specialized field of knowledge. Their main task will be to study all submitted papers critically and constructively. For a paper's evaluation a "double-blind" system will be used. This method consists of one in which authors and reviewers are not known to each other, aiming at a maximum objectivity in the evaluation of the manuscript. Those articles that are considered by the editorial and scientific committee of the journal with high possibilities for publication will be submitted to referees who will determine the relevance of their acceptance. It may be the case that they be sent back to the authors with suggested changes and then back again to the journal to continue with the evaluation process, which ultimately will assess the relevance of the article to be published or rejected.

JOURNAL FREQUENCY

The periodicity of the *International Journal of Educational Excellence* will be two issues per year, and these will form a volume. The first issue is published in the first half of the year, the second issue in the second half. There is no deadline for the submission of manuscripts, which will remain open during the whole year and publication of the

article will possibly appear in the following issue after a positive evaluation of the work. For monographs, in which contributions to a specific topic will be requested, the deadline for receipt of manuscripts for evaluation corresponds to June 30 for the first issue and December 31 for the second issue, both referred to volume of the year following the call of articles.

IDENTIFICATION AND ACCESS TO THE JOURNAL

The journal is named *International Journal of Educational Excellence*, and it is abbreviated IJEE. Its ISSN (International Standard Serial Number) number is 2373-5929. For cataloging, it should be referred to as International Journal of Educational Excellence (IJEE): ISSN 2373-5929. Access to the journal may be performed from the main web address: http://www.suagm.edu/umet/oa_pe_edu_ijee.asp

AUDIENCE

The journal is addressed to the scientific community and to the general to society as well. However, because of its own nature, the principal target audience should be: university professors, scientists, researchers, managers of higher education, social and political workers within the fields of education and science and others related.

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ETHICS

For all parties involved in the act of publishing (the author, the journal/publisher and the peer reviewer) it is necessary to agree upon standards of expected ethical behavior. The ethics statements for the International Journal of Educational Excellence (IJEE) are based on the Committee on Publication Ethics (COPE) Editors (www.publicationethics.org).

The value of scientific publishing relies on everyone involved behaving ethically. The publication of an article in the International Journal of Educational Excellence, a peer-reviewed journal, is a direct manifestation of the quality of work of the author and the institutions that support them. Peer-reviewed articles support and embody the scientific method. Ethics topics to consider: Authorship: Authorship should be limited to those who have made a significant contribution to the reported work. The authors should ensure that their study is original and written by them and their work has not been previously published and has been submitted only to the journal. / Originality: The authors should ensure that where material is taken from other sources (including their own published writing) the source is clearly cited and that where appropriate permission is obtained. / Data access: Authors may be asked to provide the raw data in connection with a manuscript for editorial review, and should be prepared to provide public access to such data. / Acknowledgement of sources: Proper acknowledgment. / Conflicts of interest: The authors should ensure that any real or apparent conflicting or competing interest is clearly stated on submission of their manuscript. / Reporting standards: Authors of reports of original research should present an accurate account of the work performed. / Human or animal subjects: The authors should ensure that they adhere to all research ethics. / Confidentiality and impartiality of the reviewers: The reviewers must maintain the confidentiality of the review process and conduct themselves fairly and impartially; immediately alert the editor-in-chief of any real or potential competing interest that could affect the impartiality of their reviewing and decline to review where appropriate.

Publication in this journal is totally free (no Article submission charges nor article processing charges and no publication fees), as one of the main goals of the journal is to provide international researchers with a free publishing platform. Papers submitted to International Journal of Educational Excellence (IJEE) will be screened for plagiarism using CrossCheck / iThenticate plagiarism detection tools. This journal will immediately reject papers leading to plagiarism.

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AUTHOR GUIDELINES

1. Introduction

The *International Journal of Educational Excellence* (IJEE) is open to all scientific articles which provide answers to the main educational and scientific problems currently impacting higher education with the purpose of achieving quality excellence in all areas. Papers will be welcome, regardless of the subject area to which they belong, as long as they entail a contribution, innovation or breakthrough in the development of models for teaching or scientific research within the university environment leading towards social improvement. Research work performed in other educational levels may be also taken into account, as well as they provide an adequate justification and a valid relationship with higher education issues.

All papers submitted for publication must be unpublished and original, and should not be under evaluation for publication in other journals. Theoretical work as well as those based on field studies and empirical laboratory experiments contributions, are accepted. All kinds of strategies and methodological approaches may be employed; however the selected method for each research has to be in compliance within the parameters of current scientific and technological research. The review criteria and selection process will mainly assessed the quality of the work under consideration in terms of the following criteria: significant contribution to the object of interest of the journal, a breakthrough to the current scientific knowledge and, ultimately, the contribution to the progress of our society.

2. Details for Submission

Manuscripts should be sent preferably sent in digital format. All manuscripts should be addressed to the journal Editor-in-Chief (email: jogomez@suagm.edu). Prior to submission, publishing standards should be carefully read at the following web site http://www.suagm.edu/umet/oa_pe_edu_ijee.asp. Only those articles that meet all the requirements and characteristics described at the web site will be accepted.

Submission of original digital file will preferably be in RTF format. The .ODF format is also accepted. Other formats (such as DOC, .PDF, etc.) are excluded.

In the rare event that the author (s) of an article cannot submit manuscripts electronically, the article shall be traditionally mailed. However, it should include a copy of the article in the previously outlined digital formats. Manuscripts will be sent by postal mail to the following address: International Journal of Educational Excellence (IJEE), Escuela de Educación, Universidad Ana G. Méndez (UAGM), Recinto de Cupey, PO Box 21150 San Juan, Puerto Rico, 00928-1150. The attention should be directed to: Editor in Chief.

3. Authorship and Responsibility

The author (s) of the article should submit one copy of the original article and a statement certifying that the work is original and has not been published before and that it has not been evaluated by another journal editorial committee.

The author (s) must also declare that [a] all named authors have materially participated in the development of the research or study that has led to the article, [b] any conflict(s) of interest, and [c] the sources of funding of research presented in the article or of the preparation of the research.

They shall also explicitly accept the journal rules of publication and the decision regarding the publication or rejection of an article. The *International Journal of Educational Excellence* (IJEE) assesses and requires all high international standards of ethical conduct of research and journal publication.

4. Preparation of Manuscripts

Articles should be submitted in proper English (British or American, however, but a mixture of both will not be allowed), whose length will be at least 3500 words and a maximum of 12,000, including references, notes, tables and figures. Exceeding this amount of words will be a major negative factor in evaluating the article, although articles exceeding this extension can be exceptionally published if they are properly justified and the work stands out for its quality.

The article must be preceded by an abstract thereof with a minimum of 150 and a maximum of 300 words. It must also be submitted in English language along with Spanish and Portuguese translated versions. The summary should also include five to seven key words in English, Spanish and Portuguese.

Articles of theoretical nature as well as those based on field studies will be accepted, and they will be considered as a positive evaluation element if those articles maintain the classical structure in scientific research papers, consisting of separate sections and subsections (eg. Introduction, Objectives, Methodology, Analysis, Results, Discussion, Conclusions, Appendices and Annexes, etc.). However, freedom is offered to the authors to establish the most appropriate structure, depending on the nature and characteristics of their research (and is especially significant in the case of theoretical articles). What is required in all cases is that the division of the article be clearly defined and numbered by the structure 1 (with 1.1, if 1.1.1, 1.1.2, etc.), 2, 3, etc. Each title and subtitle of the sections and subsections should be clearly identified through the use of spaces.

Standards of quotation, including references, must be governed by the style of the APA (American Psychological Association), contained in the *Publication Manual of the American Psychological Association*. Please see the following examples which are explained within the next paragraph:

Citations to text:

Whenever there is a quote of the author or authors of a publication, it should appear in the text in parenthesis followed by the year -for example if a single author is cited (Smith, 2014), if the citation refers to two to five authors (Smith & Brown, 2011 / Smith, Brown & Torrero, 2009), or if there are more than six authors (Smith et al, 2014) - and the full reference will appear in the list of references at the end of the article. If two or more works are cited, they will appear in the same order in the reference list separated by a semicolon (James, 2001, Smith, 2014). If in the article two or more references by the same author published in the same year are cited, they should be differentiated by lowercase letters (a, b, c, d, etc.) added to the year; in the text quote, the corresponding lower case letter will be used in each specific reference (Smith, 2014a).

If the citation refers to a general idea of the work, or if it is a general reference to an article, book or full investigation, but is not literally quoting a portion of the reference, it is only necessary to refer to the author and year of publication, without specifying the page intervals.

If the citation is literally quoting a text from a specific work, the author, year of publication and the page intervals should be entered preceded by "p" for example, according to Smith (2014) "the university teachers with many teaching hours have difficulty in carrying out research work" (p. 379), / in his study he argued that "university teachers with many teaching hours have difficulty in carrying out research work" (Smith, 2014, p. 379) but the author did not show the statistical analysis of the survey results.

In case the direct quotations exceed 40 words it is necessary to set up them within a separate text block, and quotation marks are omitted. It is recommended to begin the quotation on a new line with a tab on the left margin

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of ½ inch or 1.25 cm, maintaining this margin along the length of the cite. Page intervals should be indicated as described in the preceding paragraph.

Sometimes, in the work, it may be necessary to refer to indirect quotations, i.e. presenting information or ideas of an author who has been picked up and quoted by some other one. In this case, the two authors are cited; starting with the indirect reference, for example, Brown (cited by Smith, 2014, p. 179) suggests that research is essential in university teaching. It is also recommended to find out and cite the original source.

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The list of references should appear at end of the article. With this information, the reader may access any of the sources that have been cited in the main body of the work. Each and every one of the sources cited should appear in the reference list. Similarly, each of the references that appear in this list should appear in the main text of the article at some point.

The references list appears at the end of main body of article, and after two spaces, using the title "References", with the same format as each of the subtitles that make up the work. All lines subsequent to the first line of each entry in the reference list should be indented ½ inch or 1.25 cm. The names of the authors appear inverted (last name then first initial or initials of the first names). The entries in the reference list should be ordered alphabetically according to the first author of each work. If several works by the same author have been cited, these entries should also be collected in chronological order, starting from oldest to the most recent. The full title of the work should be provided, keeping the title used by the publication. Capitalization of all major words of journal titles is recommended.

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At present, the rules of APA citation are widespread in the field of social research, and its style is the most currently used to cite sources in this area. Therefore in case of any doubt regarding citations, we recommend consulting the *Publication Manual of the American Psychological Association* (6th edition), where it multiple examples of formats of research papers, text citations, footnotes, references, etc. can be found; here we have offered only general guidelines.

General Format of Manuscripts:

The manuscript should follow the general format not only meeting the scientific requirements requested by this journal but also identifying the best possible characteristics of the article. Submission the manuscript in digital format, or RTF .odf, double-spaced in a standard size paper (8.5 "x 11") or A4 (21 x 29.7 cm) 1 "(or 2 cm) margins, is recommended. Although any easily readable source may be used, the use of Times New Roman 12 point is recommended. The manuscript should include a header at the beginning of the page, providing the main scientific information of the author and the work. These data are:

Title: should be as concise as possible, reporting the content of the article. It should be taken into account that quite often titles are used by scientific database systems and information retrieval, so it is advisable that it contain words directly related to the content of work. It must not contain abbreviations or acronyms that are not widely known. The title should be centered as the first element of the header. The APA recommends that it does not exceed 12 words in length, but if it were required by the nature of the work, it shall not prevent the acceptance of the manuscript.

Name of author (s) and affiliation: should appear in full below the title, separated by a double space using the following format: First Name, Middle Initial (if applicable) and last name (both names if Latin American author (s). Titles (Dr.) or degrees (PhD) may not be used. In order to allow the precise localization of the institution where the research was performed, its full address should appear below the name of each author (City, country, zip code). Finally, below the institution's address, the e-mail of each author should appear.

Mailing address of the corresponding author: In addition to email, full address for correspondence is recommended but not mandatory (telephone numbers, country and local codes). It may appears as a footnote.

Abstract: It should be placed after the name, affiliation and email address of the corresponding author separated by double space. As indicated above, it should have a length between 150 and 300 words. It will be sent in English, Spanish and Portuguese and should summarize the main features of the research work (as a minimum it is advisable to include a summary of the objectives, methodology and results, especially if it is based on fieldwork research). Future research may be included, especially if it has given rise to different questions that invite subsequent effort.

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Keywords: will be entered below the summary separated by a double space. We recommend providing five to seven key words that identify the work more precisely, and may help other researchers to find it in the international databases. The keywords will be sent in English, Spanish and Portuguese, and for their selection it is advisable to use the thesaurus most used in the specialty.

Article: Below the keywords, the author will place the main body of the text submitted for publication in the International Journal of Educational Excellence (IJEE), in accordance with the recommendations given in this Guide for Authors.

Scientific and professional record of author (s): Placed below the main body of the manuscript leaving three lines and as the last element of the manuscript to be submitted. The scientific and professional background of each author should not be longer than 300 words, specifying recent published papers.

Notwithstanding the guidelines outlined above, it is strongly recommended for preparing manuscripts, to follow the APA style compiled in *Publication Manual of the American Psychological Association* (6th edition).

5. Publication of Articles

Submission of a manuscript to the *International Journal of Educational Excellence* (IJEE), implies a previous statement by the authors that the work submitted to the journal is original and unpublished, that it has been the result of the authors' work, that all the signatories have materially participated in its preparation, and that the manuscript is not under evaluation for publication elsewhere, whatever the media, especially that it is not under evaluation by other scientific journals. All journal rules are also accepted, as well as final the opinion resulting from the academic evaluation of Article whether it is accepted or rejected for publication.

The editorial staff of the *International Journal of Educational Excellence* (IJEE) is not responsible for the opinions, analysis, or results collected by the authors in their articles. It is also assumed that all material in articles are free of copyright rights and therefore it is not responsible for any disputes or claims related to intellectual property rights, which are the sole responsibility of the authors.

The decision to accept or reject the publication of the manuscript will be notified within a maximum period of four months. The notification will be sent electronically (e-mail) to the corresponding author. If accepted for publication, the paper will appear in the next volume of the journal.

The articles published in the *International Journal of Educational Excellence* (IJEE) are digitally edited and will retained all the characteristics of those published in traditional print journals. The articles appear in PDF format, conveniently typeset and numbered as classical journals. Therefore, in this sense the editors facilitate their distribution of the journal and articles and the scientific citation or its contents according to all current standards, making available to the scientific community, valuable contributions resulting from the research. We can say, that in general, this is a publication that takes advantage of all the benefits that ICT offers for easy editing and distribution, considering also the ecological side of publishing without paper. This means that only those parts that are needed should be printed if the case arises. In addition, the digital format of the articles of the *International Journal of Educational Excellence* (IJEE) is adapted to the new computer and telematics tools used in scientific and academic contexts, easily allowing information searching, online and bases data indexing, etc. Access to the content of the *International Journal of Educational Excellence* (IJEE) is free, thereby contributing to the globalization of science and culture.

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Assessing the Value and Effectiveness of Study Abroad and Exchange Programs in Foreign Language Degree Programs: A Case Study

Nicole Roberts ^a

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Abstract: As study abroad efforts take on increased importance globally, it is vital that we use the resources of the academy to research the impact and effectiveness of these programmes. This paper assesses aspects of the varied exchange (EXC) programmes and study abroad (SA) programmes which exist at the University of the West Indies, St. Augustine campus (Trinidad y Tobago). Data was collected from among students in the French and Spanish degree programmes. The study sought to assess the academic benefit of the programmes while at the same time assess the value-added aspects of the programmes. Overall, it was found that the impact of these international experiences on student learning has not to date been assessed with an aim to making interventions in the varied programmes. As some previous research indicates, to simply send students to a location abroad for academic study is not sufficient toward facilitating the larger goal of creating effective global citizenship. Findings from this research lend empirical support to the notion that study abroad and exchange programmes at all levels facilitate the creation of global citizens.

Key-words: Study Abroad, Exchange Programmes, Student Learning, Foreign Language Learning, Global Citizens.

1. Introduction

1.1. Context

While study abroad programs are increasing globally, at the St. Augustine campus of the University of the West Indies (UWI) [The Univer-

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sity of the West Indies (The UWI) comprises campuses at St. Augustine in Trinidad and Tobago, Cave Hill in Barbados and Mona in Jamaica as well as the Open Campus (a virtual campus)], participation in study abroad (SA) and exchange (EXC) programs do not seem to have great enough reach among student stakeholders. It is clear that this is not because of a lack of programs nor information. As the websites for the Department of Modern Languages and Linguistics (DMLL) and the International Office (IO) of the UWI both indicate, there are a large number and variety of programs open to student participation yearly at both the undergraduate and postgraduate levels and across a wide range of institutions. Additionally the DMLL hosts one meeting yearly in which students are given information on possible SA and EXC opportunities which exist and they are afforded the opportunity to liaise with past SA and EXC candidates. In addition, EXC interviews are advertised widely across the campus. Thus, knowing the clear benefits of SA and EXC programs, it remains unclear why students of the UWI in L2 degree programs seem reticent to take on the challenge of living, working or studying abroad.

This study examines only the undergraduate programming in French and Spanish and covers the years 2003-2013. It was felt that a 10 year span would ensure information on a broad base of students, present trends (whether upward or downward) in accessing programs and also it would highlight the diversity of programs offered. The major in French or Spanish in the DMLL is a 3 year (full-time) or 5 year (part-time) program. Students in French or Spanish have the option to access SA or EXC programs during their second year of study or the first semester of their final year. In addition, to participate in SA and EXC programs, students of the UWI, St. Augustine are required to have a minimum GPA of 3.00 (a B average). During the period of time under study, French students in the DMLL had access to the following programs:

- *Summer Immersion: Contact et Recherche Caraïbe (CO.RE.CA.)* A two week program in Guadeloupe.
- *Study Abroad Program - Université des Antilles et de la Guyane (UAG):* A semester long program in Martinique. (This is now Université des Antilles).
- *Study Abroad Program - Université Michel de Montaigne (Bordeaux III), France:* A year long program in France.
- *English Assistantship Program:* An exchange/work abroad program of one academic year for recent UWI graduates.

Students also had access to any of the programs which come out of UWI partnerships (through The International Office) with other institutions for a semester-long or a year-long SA program at any of the following Francophone institutions:

- 1) Université de Montréal – Canada
- 2) Institut d'Etudes Politiques of Bordeaux – France
- 3) Institut d'Etudes Politiques of Toulouse – France
- 4) Sports Management School – France

Similarly, Spanish students had access to a number of programs as follows:

- *Student Assistantship*: An exchange program of one academic year with the Universidad Pedagógica Nacional (UPN), Bogotá. Students must have completed two academic years at the UWI, St. Augustine and must return to the UWI, St. Augustine to complete their degree program.
- *Study Abroad Program*: Opportunities exist for semester-long or year-long programs in Colombia, Costa Rica or Spain.
- *Short stay (pasantía corta)*: A six week summer program with Universidad Nacional de Colombia, Bogotá. (Note: This program was suspended in 2009 due to economic costs.)
- *Short stay (pasantía corta)*: A four week summer program with the Universidad Nacional de Costa Rica.
- *ICETEX Language Assistantship Program in Colombia* [ICETEX Programa de Asistente de Idiomas en Colombia]: An exchange/work abroad program of one academic year for recent UWI graduates (The MOU is between the UWI and the Instituto Colombiano de Crédito Educativo y Estudios Técnicos en el Exterior/ICETEX).

In addition, students who were majors of Spanish could access any of the programs which come out of UWI partnerships (through The International Office) for a semester-long or a year-long SA program at any of the following Spanish-speaking institutions:

- 1) Simon Bolivar University – Venezuela
- 2) Universidad de Oriente – Venezuela
- 3) Universidad de la Sabana – Colombia
- 4) University of Zaragoza- Spain

It is also to be noted that students could choose to access SA opportunities from universities in the Anglophone world. These partnerships with the UWI are numerous and include (but are not limited to) Queens University, Canada, The University of Miami, Florida, USA.

1.2. Problem Investigated

The purpose of this study is to identify the SA and EXC programs offered at the UWI, St. Augustine.¹ It explores the possible reasons or causes of a seemingly lackluster participation by students and focuses on the central

research question - whether students fail to take advantage of SA and EXC opportunities due solely to personal economic limitations. The study also seeks to assess the overall impact of the international experiences of the students and to determine the academic benefit of the programs while at the same time describe the value-added aspects (if any) to the degree programs.

1.3. Research Objectives

Undoubtedly, the levels of student participation in SA and EXC programs are of value both to the DMLL as well as to the institution as a whole as these programs offer ultimately, the production of a more globalized graduate. This level of diversity stands as one of the Core Values of the UWI. However, it is more important to the department that we have a sense, based on empirical evidence, of the levels of student learning throughout SA and EXC programs as well as on students' return to the institution (in the case of students who return to complete degree programs). This not only allows us a basis by which to measure the internationalization of our programming but also to have evidence of learning among our French and Spanish language students and perhaps most importantly, be able to gauge the value of SA and EXC programs to the overall UWI French and Spanish degrees. Broadly, the goal of the study was to present a comprehensive overview and an assessment of the SA and EXC programs offered to date in the DMLL.

More specifically, the study collected data on programs and student participation in the various programs (Period: 2003-2013). It sought to ascertain the international experience that students gain and it compared the way/s in which students benefit from participation in programs. The paper ends by determining if participation adds value to the DMLL French / Spanish degree programs and makes some future recommendations.

2. Literature Review

Although SA programs see students receiving credit for the work and study carried out abroad, EXC programs provide students with work abroad experience for which they do not receive university credits. However, despite these differing program models, student participation in both programs take place in the DMLL French and Spanish degree programs. To date, there are numerous studies on SA and EXC programs across the U.S. and throughout Europe where programs such as the Erasmus program (European Community Action Scheme for the Mobility of University Students) have existed since the 1980s (this program is now called Erasmus Plus / Erasmus+). Programs such as these which are oriented toward globalizing education see the exchange of thousands of students annually.

However, in the context of the Anglophone Caribbean [here I refer to those Anglophone countries in the Caribbean which are not US or UK overseas territories], there has not been a study of this nature. Moreover, to date, no research of any type has been carried out on SA and EXC programs at the UWI, St. Augustine although SA and EXC programs have been in operation across the UWI since the 1990s. A central issue which must be taken into account is that across the Caribbean there are a variety of university systems. For example, students in a U.S. university system (located in the Caribbean) are nevertheless able to access SA programs globally. Also, at the UWI, there are a number of students in self-funded programs, for example, students at the Arthur Lok Jack Graduate School of Business, who have access to and are encouraged to take part in short programs such as the International Business Study Trip; a two week exploration which sets out tours of the country to be visited, cultural experiences, business meetings, tours of business facilities, business courses, workshops or strategic sessions and of course social interaction with locals. Trips of this nature can amount to prices in the range of TT\$25,000.00 to \$30,000.00 but students are encouraged to plan for the trip and to set up payment schedules. However it must be noted that such programs are not included in this research study.

The Department of Modern Languages and Linguistics is deeply committed to the notion that SA and EXC programs are important to the academic and cultural development of our undergraduate student majors of French and Spanish and perhaps even ideally should be a required part of the degree program. At present all SA and EXC programs are optional. Among the numerous studies by U.S scholars, Vande Berg (2007) indicates that to simply send students to a location abroad for academic study is not sufficient toward facilitating the larger goal of creating effective global citizenship (395). More recent studies such as Stebleton, Soria and Cherney (2013), point out that through SA programs, students acquire greater understandings of complex global issues through interactions and work with peoples of other cultures. Still, there is strong support to show that SA and EXC programs not only facilitate student intellectual growth but also contribute to the internationalization of the DMLL. Undoubtedly one form of student assessment which contributes to our understanding of what students have learnt/gained from their study abroad experience is the blog. Increasingly students have taken to blogs and other social media to examine or analyze their lived experiences during or as a result of SA programs. For us at the UWI, St. Augustine, blogs such as *Garvin's World: A Blog by Garvin Tafari Parsons* (<http://garvinsworld.blogspot.com/>) or the blog *Hunter TT* by another former student Theron Thompson (<https://www.youtube.com/channel/UCidL3auAUa8WNV819XIIldQ>) go a long way in helping us to monitor intercultural connections and to determine the impact of SA and EXC programs on our student participants.

3. Data Collection

In terms of the collection of data, the first stage of the process focused on collecting the names of as many students as possible who participated in Foreign Language SA and EXC programs during or after their studies at The UWI, between 2003 and 2013. E-mails were sent to Heads of Departments, Study Abroad Coordinators, Program Coordinators and Lecturers. Also, names were extracted from memoranda, and other files in the DMLL Main office. By the end of this stage, 218 names were acquired. The breakdown of this figure is as follows:

- 127 persons participated in Study Abroad/ Exchange programs under the French degree program; 111 were female and 16 were male.
- 91 persons participated in Study Abroad/Exchange programs under the Spanish degree program; 76 were female and 15 were male.

A second stage of the process then began which involved obtaining the contact information of the 218 persons, as most of the names did not have this information attached or readily available. Using the names as a guide, the Research Assistant searched Facebook, perused the lists of incoming PG students as well as the lists of graduating students with degrees in Spanish, French and/or Latin American Studies, and sought information from lecturers or others. Contact information (E-mail and Facebook) was obtained for 149 persons, of which:

- 92 persons participated in Study Abroad/ Foreign Exchange programs under the French degree program; 78 were female and 14 were male.
- 57 persons participated in Study Abroad/Foreign Exchange programs under the Spanish degree program; 48 were female and 9 were male.

In the third stage, messages were sent to the 149 persons. 117 messages were delivered via Facebook, while 32 emails were sent. Persons were asked to:

- Verify or provide their current email address
- Name the Study Abroad/ Foreign Exchange Program/s in which they had participated
- Indicate the academic year of participation
- State their major
- Give their year of graduation

The final stage was placing all persons who responded to the messages and emails on the database of survey candidates. Two databases were created- one for each degree program- and names were sub-divided according to gender. Each database was further sub-divided according to the specific Study Abroad/ Foreign Exchange program, with the participants being listed

chronologically. Of the 149 persons who received messages, 104 responded. These responses are the ones used in the completion of this report. They were as follow:

- 56 persons participated in Study Abroad/ Foreign Exchange programs under the French degree program; 46 were female and 10 were male.
- 48 persons participated in Study Abroad/ Foreign Exchange programs under the Spanish degree program; 38 were female and 10 were male.

A further breakdown of figures according to the specific Study Abroad/Exchange Program is as follows:

French Study Abroad/ Exchange Programs:

- Study Abroad, Bordeaux 3: 13 persons; 10 females, 3 males
- English Language Assistantship Program: 38 persons; 33 females, 5 males
- Immersion Program, Guadeloupe: 18 persons; 14 females, 4 males
- Study Abroad, Université de Montréal /Year-long: 1 male
- Study Abroad, Université des Antilles et de la Guyane (UAG) / Year-long: 1 male
- Visiting Lecturer Assistant, Bordeaux 3: 1 female
- Teacher Training Program, Guadeloupe: 1 female

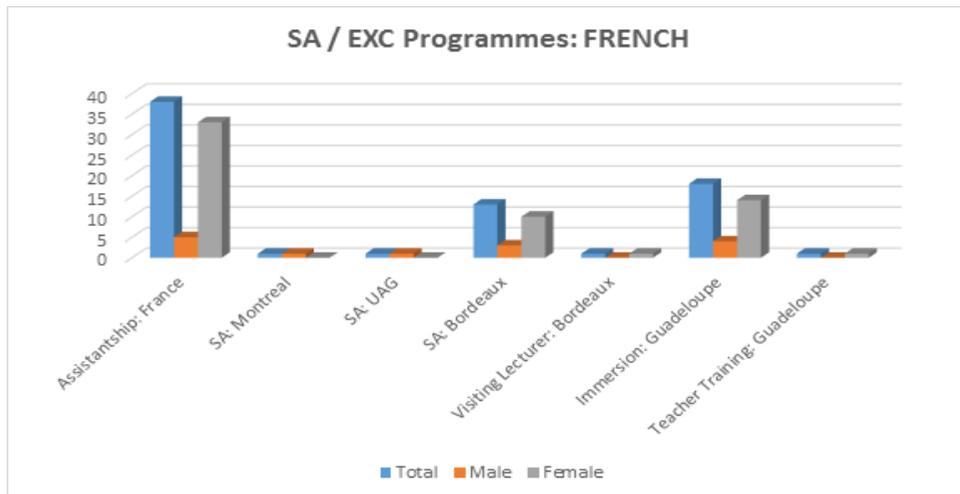


Figure 1. Study Abroad and Exchange Programs in French

Spanish Study Abroad/ Foreign Exchange Programs:

- Immersion Program, Universidad Nacional, Bogotá: 21 persons; 17 females, 4 males

- Immersion Program, Universidad Javeriana, Cali: 8 persons; 6 females, 2 males
- Exchange Program, UPN/UWI: 14 persons; 11 females, 3 males
- ICETEX Work Abroad Program: 13 persons; 9 females, 4 males
- Study Abroad, University of Zaragoza, Spain: 1 female
- Independent Study/ Work Abroad Ventures: 4 females

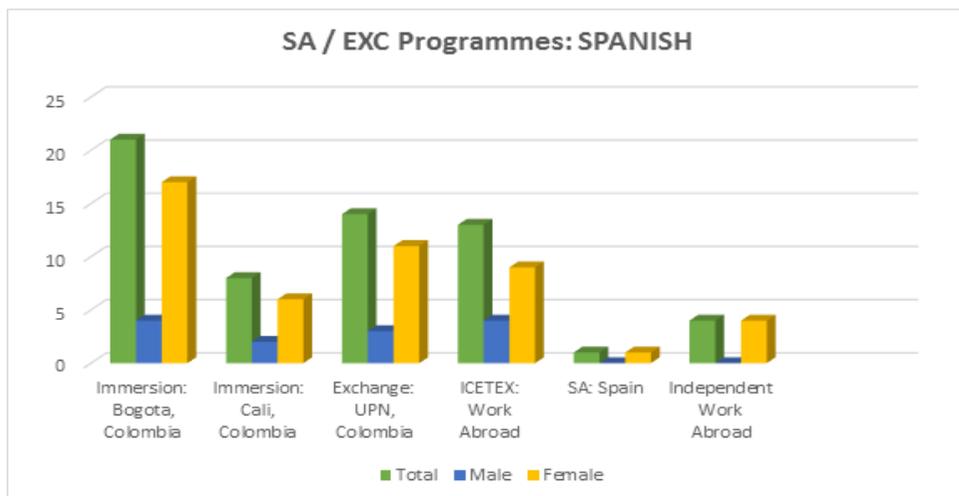


Figure 2. *Study Abroad and Exchange Programs in Spanish*

Among the total of 104 candidates, 98 surveys which employed thirteen questions, were administered electronically since 6 of the 104 survey candidates had participated in more than one program. Candidates were not given a required response time, however, periodic reminders were sent out and after a four month period, 65 survey responses were collected which were complete and the data was then collated and analyzed. The return of surveys was voluntary however, the written comments returned contained both positive as well as negative comments by students who were both pleased as well as displeased with aspects of the programs. From this we can conclude that the sample was fairly unbiased.

Of the five open-ended questions in the survey instrument, candidates were asked to describe their study abroad experience, to indicate whether they felt the program was of benefit to them and why, to discuss the benefits or disadvantages of the orientation session prior to departure, to assess their return to the UWI, to indicate if there was a follow up “work abroad” experience after graduation and/or indicate if their present job (if employed) makes use of the language studied. Finally, a control group of five students (n = 5) who chose to not participate in any SA or EXC program was chosen and interviewed. The focus group of 5 students who did not participate in any programs (3 female 2 male) met in a one and a half hour session and

responded to 5 open ended questions regarding their choice to not participate in any SA or EXC program. Their responses were similar to each other in that all 5 cited financial reasons as the main drawback to their lack of participation in any program. Overall, these students:

- had found SA attractive in the orientation session
- felt that they needed to complete their degree in as short a time as possible (3 years) and get a job so as to start earning money
- felt they did not have money to spend on such programs.
- indicated that they were unable to save monies despite the fact of knowing about the SA/EXC programs from the start of the degree program
- suggested a study abroad information session with more information given to students and more advice provided on how to save for participation in SA/EXC programs
- felt that they would seek to apply (n = 2 / both female) for the Language Assistantship program offered to graduating students after graduation because:
 - a. they had heard very good things about it from returnees
 - b. it is a paid position
 - c. it is in a foreign location and that would look good on their CVs

4. Discussion and Analysis

The results offer varying degrees of support for both SA and EXC programs in French and Spanish however; there is clearly an expectation of SA and EXC programs among the French majors. It appears that there is more of a culture of study abroad among French students. Although more anecdotal than empirical evidence exists; of the focus group n = 5 indicated that French students seem to have more of an expectation of SA and/or participation in SA and EXC programs because they noted that from early in their degree, other students would openly discuss plans for and/or experiences abroad. They all agreed that this was not the case among Spanish majors. Overall 82% of the respondents of the survey were women; a factor which is not surprising as the vast majority of majors in both French and Spanish degree programs at the UWI, St Augustine campus are female.

In the survey, respondents (n = 20) indicated that benefits included speaking in the classroom with more confidence on return to the UWI as well as greater success in the Listening Comprehension module of language courses. Overall increased competency in the language was clearly a factor which drew many students (n = 46 respondents felt this to be the most positive and distinctive benefit to the SA or EXC experience). As this student points out:

The program was a definite benefit. It allowed me to gain invaluable experience in teaching English as a foreign language, as well as increasing my fluency in Spanish. It gave me an advantage in my final year of undergraduate study as well (*Student A*).

Many students linked their improved academic performance to greater intercultural awareness and their own personal growth or confidence arising from the SA or EXC experience (n = 49). As another student points out, the program helped with both intellectual growth as well as cultural awareness:

This [program] was definitely a benefit - It helped me to improve my Spanish language fluency and develop practical use of the language. Also the experience of living in a new country contributed to my personal growth - enhanced my ability to deal with new and challenging situations, made me more open to different cultures (*Student X*).

Overall, most students felt that there were more benefits to the programs than bad experiences. In the main, students' negative comments centered on EXC programs not having an academic slant. Students (n = 10) felt that this could be improved by awarding full credits or even co-curricular credits for work carried out in such programs. Students (n = 7) also indicated that although they were provided with an excellent orientation session prior to departure, what is needed are tailored courses on teaching English and/or cultural awareness especially for the EXC students who go abroad to teach English. Additionally, some students (n = 3) mentioned encountering what they thought to be situations of racial prejudice in France and 1 student reported an incident of racial prejudice in Spain which she saw as a genuine human interaction. Perhaps more importantly, the student felt that it helped her to reflect on intercultural mind-sets. She said:

I learnt to deal with racism as well; many people considered me *latina* (I guess because of my accent and my hair and possibly the way I dress), and there are many Spanish people that have a slight hatred for Latin people. I literally heard an old man talking to his friend one day about how Latin people are annoying and they ruined the Spanish language. Basically saying that they were the creators of their own (for lack of a better adjective) "uneducated" form of the Spanish language. I was also called a *negra* once but not in the acceptable way the Dominicans would say it. It was said in such a very condescending manner. I actually cried. But! I got tough and it all helped me to realize how blessed we are here in Trinidad (*Student Y*).

Finally, the overall majority of students (n = 63) indicated a self-perceived improvement as a direct result of SA and EXC programs. Perhaps most importantly, students felt that the SA and EXC programs provided them with an opportunity for academic, personal, and intercultural development. This also included the students (n = 2) who had reported very negative incidents during the time of their SA program. As one French student pointed out:

The Exchange program was a huge benefit - The program teaches individuals the value of learning a foreign language through sharing one's own language/culture with a foreign audience. Furthermore, there is no better way to learn/improve one's competence in foreign languages than to actually live in a foreign country and experience the culture and people associated with them (*Student L*).

Here, Parsons' commentary not only speaks to the notion of intercultural sensitivity but it is also a strong affirmation of his personal development over the period of the stay. No doubt the experience of the riot may have been troubling, but his clear empathy with the frustration of the students in Colombia given their lack of resources as well as his adaptability is emphasized. Further, although he adapted to the new cultural environment, his seemingly flippant comment on 'missing the UWI' also displays a maturity of thought in recognizing that at the home institution, there was much in the way of resources for which he had to be grateful but only recognized after departure.

There were areas that this study did not explore due to limited funding and resources. For example, there are clearly more French than Spanish participants in SA and EXC programs in the DMLL. This situation should be further investigated as the Spanish section intake is about 100% higher than that of French and approximately 50% of French students are also Spanish students (Double majors). However to complete this, students would have to be surveyed to investigate why they were more apt to choose French programs or indeed to explore the other possible influences on their SA and EXC choices. Additionally, the study did not explore a comparison between the overall numbers in the programs in French and Spanish vs the numbers who take part in SA and EXC programs. This information would be important to gain insight into the overall impact of SA and EXC programs on graduating classes as a whole.

Clearly more data is needed to expand the horizons of this research and thus the information collected on student patterns in SA and EXC programs. However, this has funding implications. The latter is urgently needed as the DMLL and the UWI continue to register lower enrolment rates in language programs every year. But there is also a need for greater collaboration

between the International office and the DMLL so as to intensify recruiting efforts. That said, this is not to undervalue the information received in this preliminary study. One definitive area of importance not covered in this study is the value added to internationalization and intercultural sensitivity among students by a large international staff. Over the period under study, the staffing in the department was approximately 55% foreign. This would have provided students with knowledge of cultural, racial and ethnic diversity and a certain level of comfort or ease with working with peoples from other cultures. This is an area therefore that should undoubtedly be analysed in any further research work on SA carried out in the DMLL.

5. Conclusions

Participation in SA and EXC programs is not necessarily growing among students in the DMLL but no factors indicate diminishing participation either. Despite the first orientation meeting which takes place in semester one at which students are advised to consider and plan for participation in SA and/or EXC programs, despite information which is filtered to the student population through social media and through the International office, and despite the fact that Trinidadian and Tobagonian students access GATE funding [GATE is the Government of Trinidad and Tobago funding program which offers financial assistance and assures tertiary level education opportunities to nationals of the country] which covers tuition, many students still claim the lack of funding as the major barrier toward their participation in programs. The results of this study suggest that students perceived an improvement in their cultural competence and knowledge in the foreign language. However the former is a complex construct and a difficult one to prove and the latter may have more to do with the motivation to quickly complete the degree on return home. What is certain is that students who study abroad or who participate in EXC programs have an increased chance of learning based on intercultural experiences, that is to say, students benefit from the mere experience of living and/or working in another culture based squarely on increased awareness.

By analyzing students who have participated in SA and EXC programs at the UWI, St. Augustine campus, over a ten year period, the current study hopes to provide support for the argument that the institution must view positively student participation in these programs and be prepared to explore varied funding measures whether through the regional institution or through the varied governments which support the UWI. The varied MOUs which the UWI hold with international institutions already serve to remove one barrier; that of the easy transfer of credits earned from the institution abroad to the UWI. However, the UWI must also seek to somehow remunerate the students who participate in EXC programs and who do not receive credits for those programs. Nevertheless, it is hoped that this paper presented the problems but

more importantly highlighted the possibilities for student learning abroad and presented the student view that SA and EXC programs are an educational exercise with benefits.

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The Global Sleep Crisis and University Education: Counseling Implications for Mathematics Education Students in Nigeria

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Abstract: Sleep has been considered a vital component of mental, physical and academic well-being of higher education students. This study adopts the survey research design to investigate the pattern of some sleep variables among mathematics education students in North Central Nigeria. The sample comprises 215 mathematics education students randomly drawn from two federal universities in North Central Nigeria. The instrument for data collection is the researcher-developed Technology Usage and Sleep Pattern Questionnaire (TUSPQ). Data collected on use of electronic device at bedtime, screen time during daytime, sleep onset latency (SOL), wake after sleep onset (WASO), subjective sleep need (SSN), nighttime phone location and nighttime awakenings were analyzed using frequency counts, simple percentages and means. The results indicate dismal sleep duration of 5 hours and 19 minutes and a sleep deficit of 2 hours and 35 minutes attributable to high use of smartphones, laptops and TVs in the last hour before going to bed. The implications of these findings for counseling interventions in Nigeria's higher education system were considered.

Key-words: Sleep, Sleep Deficiency, Sleep Counseling, Mathematics Education, Higher Education.

1. Introduction

University education in Nigeria is the apex of the educational pyramid for young adults seeking intellectual advancement, skills development and career growth. It is a significant stage in the education of the Nigerian child,

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especially as it is the only level of education in the country in which the student exhibits true autonomy. The basic education and secondary education levels from which the student emerged are characterized by checks and balances enforced by parents, guardians, caregivers and sponsors. Most basic and secondary schools in Nigeria even adhere to regular use of school uniforms, a kind of forbearance most children cannot wait to exit. As such an admission into higher education also implies an admission into personal liberty on the part of most students, a liberty of choices that will definitely define the degree of success of students' university education.

One of the choices students in university had to make early enough is the choice of sleep. This simple choice had hitherto been under the supervision of adults who are deemed to know the impact of sleep on academic progression. Once off the careful eyes of such supervision, most students are confronted with the challenge of establishing a personal schedule that is flexible enough to accommodate the academic and socio-cultural demands of their university education. The challenge becomes more attenuated by the encroaching presence of smartphones, gaming consoles, betting centres and other encumbrances of a typical night life. In the end, the typical mathematics education student finds himself confronted with the realities of sleep deprivation and cognitive overload often resulting to stress, impacting all-round well-being of the student.

Sleep is a dynamic activity that is essential for human well-being like food and water. Sleep is, in essence, food for the brain and insufficient sleep can be harmful, even life threatening (National Sleep Foundation, 2000). Sleep is an opportunity for the body to repair itself. Some forms of sleep are associated with physical repairs such as torn muscles and organ cleansing while other forms of sleep are associated with psychological repair such as laying down memories and working through anxiety (Williams & Carey, 2003). A widely accepted sleep-wake cycle which consists of roughly 8 hours of nocturnal sleep and 16 hours of daytime wakefulness is controlled by a combination of sleep homeostasis and circadian rhythms (National Sleep Foundation, 2000). The disruption of the sleep-wake cycle results in sleep loss, an accumulation of sleep debt that must eventually be repaid.

Deficits in daytime performance due to sleep loss are experienced universally and associated with significant social, financial and human cost (Durmer & Dinges, 2005). The spread of this core societal problem is indeed global and has come to be termed the "global sleep crisis" (Walch, Cochran & Forger, 2016; Gallagher, 2016). All over the world people are increasingly cheating on sleep, with the trend significantly steeper for teens and university students (Willingham 2013). An obvious correlation of this trend with increased use of smartphones, light-emitting e-readers, and social networks has been widely reported (Chang, Aeschbach, Duffy & Czeisler, 2015; Mark Wang, Niiya & Reich, 2016). Also, the effects on cognitive functioning,

daytime alertness, task performance and critical thinking have been reported across wide demographic characteristics (Horne, 1988; Stepanski, 2002; Griffith & Mahadevan, 2006; Ramadani *et al.*, 2013).

The seriousness of sleep-related problems in Nigeria is, however very unique. Nigeria is a rapidly growing technology hub in Africa and some Nigerians consider early adoption of new digital technology as an integral part of social status display. Twinpine Network (2016) reported that Nigeria is the most mobilized country in the world ahead of India and South Africa with 40% mobile penetration and 30% Smartphone penetration rate. Nigerians spend 193 minutes on Smartphone daily across all media (Twinpine Network, 2016), and a huge chunk of these users are university students. There is, therefore, the need to consider sleep dynamics with these country-specific realities in mind.

Earlier works on sleep related issues from within Nigeria have vividly established the risk sleep deprivation poses for students. Maduabuchi *et al.* (2014) observed that adolescents have varying degrees of sleeping practice and hygiene. Williams and Aderanti (2014) reported a significant relationship between adequate/inadequate sleep and academic performance among under graduate students of private universities in Ogun State, South west, Nigeria. In another study, almost a third (32.5%) of medical students from a Nigerian university reported poor quality sleep (James, Omoaregba & Igberase, 2011). Okunbor, Agwubike and Emelike (2010) also observed that inadequate sleep militated against the performance of students of Nigerian tertiary institutions in rigorous fitness and recreational activities.

A study from the Middle Belt (North Central) region of Nigeria observed that, a substantial number of students had borderline nighttime sleep duration and so had potentials to transit into the problematic insufficient range (Sanya *et al.*, 2015). Sanya *et al.* (2015) also reported that 10% of teenagers do make regular phone calls at night and 5.5% surf internet on computers and smartphone at night.

Most of the studies emanating from Nigeria however focused on students at the secondary level of education. The few ones from tertiary institutions were carried out by health practitioners who often end up recommending that affected students seek help. The studies failed to stress the specific intervention required by undergraduates to adequately adjust their lifestyles and handle sleep-related outcomes in their university education. There is also a shortage of research reports from North Central Nigeria on the dynamics of sleep deprivation, particularly as they relate to Mathematics education students. It is against this backdrop that this present study sought to investigate the gravity of the global sleep crisis among mathematics education students in universities in North Central Nigeria.

2. Theoretical Foundations of Sleep Research

Sleep has been many things to different people over the course of human history. Early theories and observations from the ancient Greek and Romans including Alcmaeon, Empedocles of Agrigentum, Diogenes, Aristotle and Galen view sleep as an affection of the sensitive part of the soul, an absence of motion and a state of powerlessness due to excess waking (Papachriston 2014). These early perspectives consider sleep as passive, near-death state, inactive, lack of brain and body activity. As time progresses, particularly during the Renaissance period, the brain came to be recognized as the source of sleep, driving more enquiries into the function of sleep. With the advent of technology to record electrical activity in the brain, sleep came to be seen as indeed functionally important and that it ultimately enhances survival (Rechtschaffen, 1998).

A theory of sleep is an attempt to explain why animals sleep. According to Sammons (n. d.), a good theory of sleep should provide a plausible explanation as to why sleep is found in such a variety of different animals. It should explain the findings of research studies into sleep deprivation and shed light on the differences that exist in sleep patterns between different species. There are two general approaches taken by theories of sleep. On the one hand, Restoration Theories (credited to key players including Ian Oswald), suggests that sleep exists in order to repair and restore the body. On the other hand, the Evolutionary Theories relate sleep to the ability to survive in a hostile environment.

The Restoration Theories of sleep has been providing theoretical foundations for sleep deprivation studies for decades. According to this line of reasoning, the function of sleep is to restore the body during periods of inactivity so that adequate biological functioning is ensured. The tissues of the brain and body are repaired and the chemicals needed for proper functioning are replenished (Sammons, n.d.) Assefa, Diaz-Abad, Wickwire and Scharf (2015) reported that a new rendition of the physical restoration point of view by Markus H. Schmidt considers sleep based on the need to optimally allocate limited energy resources to essential biological processes. Schmidt's Energy Allocation Model of sleep posits that the sleep-wake cycle evolved to perform unique and essential biological processes during sleep as a way to decrease energy requirements of wakefulness and reduce total daily energy expenditure. Assefa *et al.* (2015) argued that hormones released during sleep assists in memory formation and performance of higher level cognitive functions essential for learning and survival.

Neuroscientific studies of sleep have defined sleep on the basis of behavioural and physiological criteria dividing it into two stages: non rapid eye movement (NREM) sleep and rapid eye movement (REM) sleep. Both the NREM and REM sleep alternate in a cyclic manner with a total of 4 to 6

cycles noted during sleep in adults and each cycle lasting on average from 90 to 110 minutes (Chokroverty, 2010). In adult human, the first third of sleep is dominated by the slow wave sleep and the last third is dominated by REM sleep. The REM is often characterized by rapid eye movement and muscle atonia. This categorization of sleep results in different stages of sleep. Saey (2009) recognized five stages of sleep, with the first four stages characterized by drop in heart rate, body temperature and brain activity, supporting the view that sleep serves to save energy.

The brain orchestrates the daily sleep-wake cycle by responding to external ones, such as sunlight and the body's own rhythms. Levels of chemical messengers, hormones and proteins rise and fall in key parts of the brain to generate wakefulness and sleepiness. Tracking brain activity during sleep, scientists have also revealed regions important for other putative functions of sleep, such as memory storage and information processing (Saey 2009). The information processing task of the brain is what makes the connection of sleep to academic well-being a very strong one. The role of sleep in the overall health of the central nervous system underscores its importance for students, for which lack of sleep can lead to deficiencies in concentration, reaction time and overall alertness (Oelschlager, n. d.; Short & Banks, 2014).

For the mathematics education student, the impact of sleep deprivation is crucial. This is because of the frequency of problem solving, procedural fluency and critical thinking teacher preparation in mathematics requires. The reported trend is that students tend to stay up late negating the recommended 7-8 hours of deep sleep because they had to work to pay for school, they are trying to finish an assignment that is due the next day, or they are engaged in a leisure activity (Schumacher & Sipes, 2015). Using restoration theories of sleep, evidences have been turned up showing a variable (negative) impact of sleep deprivation on students' mood, cognitive performance and motor function due to an increasing sleep propensity and destabilization of the sleep-wake state (Durmer & Dinges, 2005).

3. The Pivotal Role of Psychological Counseling

A scenario reported across several Nigerian news outlets at the close of 2016 underscores the importance of sleep, even for those in "high places". According to Premium Times (2016), the Governor of Yobe State directed a sleeping commissioner at the presentation of the 2017 budget to the State House of Assembly to go home for more sleep. The news report indicated that the governor had barely commenced reading the budget speech when the cabinet member started snoring. Such displays of obvious sleep debt, which are becoming regular at many televised official seating (including the

National Assembly), are sharp indicators of the sleep time bomb on which the society is sitting.

On a grand scale, Hafner *et al.* (2016) in a study for RAND Europe unveil amazing statistics on the causes, consequences and related economic costs of insufficient sleep. The empirical findings of this RAND Europe research into the economic burden of insufficient sleep across five different OECD countries suggest that workers who sleep less than six hours per day report on average 2.4% point higher productivity loss due to absenteeism or presenteeism than workers sleeping between seven to nine hours per day. Economically, this loss translates to \$680 billion across the five OECD countries. For students, sleep deprivation results not only in being too tired to concentrate on school work, but also in brains that would not work to full capacity (Ansell, 2012). The emotional and mental disarray associated with sleep deprivation definitely affects students' academic performance and as such students with sleep problems need serious help (Dawson 2005). Such helps are often available to students via psychological counseling provided by higher educational institutions and other partnering organizations (GoodTherapy.Org, 2016).

Although the fact on individual differences makes it impossible to set precise recommendation about how much sleep is sufficient, there is a clear consensus about what constitutes insufficient sleep. Available guidelines frequently provide a range of hours individuals should sleep every night, and by extension, anything falling short of the recommended lower boundary can be understood as constituting insufficient or short sleep, giving rise to sleep deprivation, particularly if this is a regular occurrence (Hafner *et al.*, 2016). Table 1 shows a range of International Sleep Guidelines. Sleep counselors and other mental health practitioners often fall back to these guidelines when rendering help to individuals with sleep problems

Source	Guideline
National Sleep foundation	7 – 9 hours
Mayo Clinic	7 – 9 hours
National heart, Lung and Blood Institute	7 – 8 hours
Royal college of psychiatrists	Around 8 hours

Table 1. *Selected International Sleep Guidelines (Source: Hafner et al., 2016)*

Sleep therapist look for general sleep-related characteristics such as poor quality of sleep, insufficient sleep and sleep that comes at inappropriate times. Fatigue and diminished capacity for cognitive focus are two of the most noticeable concerns of sleep disorder among students (GoodTherapy.Org, 2016). Counseling for sleep-wake disorders generally focuses on changing behaviour, setting and achieving goals, becoming more self-aware and learning relaxation skills. Once the root cause of a sleeping problem has been

uncovered, counselors can help victims develop skills to modify unwanted sleep patterns. According to GoodTherapy.Org (2016), methods used in therapy to address sleep-wake disorders include keeping a sleep diary, stimulus control instruction, sleep hygiene education, relapse prevention, phototherapy and dark therapy.

Several special sleep counseling interventions have revealed the pivotal role psychological counseling plays in sleep therapy. Matthew, Hughes and Rogers (2014) affirmed that when considering quality of life, in the domains of Role Emotional Score, Mental Health Score and Mental Component Score, it can be concluded that counseling has a positive effect on emotional health and mental well-being. Similarly, a pilot project by Sleep Scotland enables students to understand the process of sleep, why it is so important for their well-being and strategies they could implement to promote a good night's sleep (Ansell, 2012). Some of the strategies recommend restricting homework exercise and computer games to the early evening, keeping to a regular bedtime and setting the hour before bedtime for relaxing and bathing. Other outcome studies based on non-pharmacological treatments for sleep deprivation have shown very good outcomes for individuals engaging in psychological and behavioural approaches (All in the Family Counseling Centre, 2016).

The need for psychological counseling is very much highlighted when considered in line with the unique demographic characteristics of university students. Typically, students who sleep less than the average are seen to be more active, sociable, ambitious and extroverted, while those who sleep more than eight hours a night have been found to be more introverted, critical and significant worriers (Oelschlager, n. d.). Most students are thus left battling for a balance between social acceptability and a desirable sleep-dependent mental health. It is also difficult for most students to shake off misconceptions about hardwork, resulting in very few students identifying the importance of sleep and even the need to seek help on sleep related issues.

4. Empirical Studies

The first sleep deprivation study by Patrick and Gilbert was published over a hundred years ago and since then many studies have examined the impact of sleep deprivation on healthy functioning (Short & Banks, 2014). With respect to schooling, the impact of sleep deprivation, sleep restriction and sleep fragmentation on cognition, sustained attention and mood is a reflection of the effect sleep has on the neural systems that control these functions. The field of sleep psychology is already well-researched and any highlighting of studies can only be representative and perhaps demographic-specific.

In a study on sleep loss and divergent thinking ability, Horne (1988) examined task performance levels of 12 subjects who went 32 hours without sleep against a control of 12 other subjects who had normal sleep. After administering the Torrance Tests of Creative Thinking, the study observed that performance of tasks was significantly impaired by sleeplessness, indicating serious impact on divergent and creative thinking. Much recent study by Stepanski (2002) also affirmed that even fragmented sleep, which is less restorative than consolidated sleep, leads to sleepiness-related daytime impairment.

Modern studies have tried to isolate factors that contribute to sleep deprivation in an attempt to measure specific cause and effect relationship. For instance, Chang *et al.* (2015) found results that demonstrate that evening exposure to light-emitting eBook readers phase-delays the circadian clock and reduced next-morning alertness. Similarly, Mark *et al.* (2016) after logging computer and phone use data and collecting sleep diaries and daily survey of 76 college students for seven days, observed that with less sleep, people report higher perceived work pressure. This result suggests that with less sleep, people may seek out activities requiring less attentional resources such as social media use. Another study by Van der Helm, Gujar and Walker (2010) observed that sleep deprivation selectively impairs the accurate judgment of human emotions, especially threat-relevant (anger) and reward-relevant (happy) emotions, thereby disrupting salient affective social cues.

In an African study, Gikunda *et al.* (2014) observed a positive correlation between sleep quantity and academic performance in a sample of 100 undergraduate students of public universities in Kenya. Similarly, the cumulative grade point average (CGPA) of Nigerian undergraduates was observed to be related to their quality of sleep (Williams & Aderanti, 2014). Poor quality of sleep was also observed among Medical students in Nigeria with particular association with predisposing and several modifiable factors (James, Omoaregba & Igberase 2011). Considering students perspectives on sleep, Aloba *et al.* (2007) reported that despite the critical nature of sleep problems in Nigeria, many university students do not perceive their sleep problems to affect their functioning because they need to read, especially at night, to survive academic pressure.

Some recent empirical works are particular in their measure of specific sleep variables such as time in bed, sleep duration, sleep onset latency, wake after sleep onset and sleep deficit. Hysing *et al.* (2013) and Hysing *et al.* (2015) refined a systematic approach to measurement of sleep parameters using simple self-reported questionnaires. Hysing and associates computed sleep deficit by subtracting sleep duration from subjective sleep need, with sleep duration being a function of time in bed, sleep onset latency and wake after sleep onset. Similar simplicity was applied by Rosen *et al.* (2016) in

relating nighttime phone location and night time awakenings to sleep deprivation.

Although evidences abound on the patterns of sleep of diverse demographic categories from Nigeria, very few studies considered specific measurement of sleep variables. Maduabuchi *et al.* (2014), for instance, observed a weekday sleep duration of 7.84 hours and varied SOL (< 5minutes and > 30 minutes) among adolescent secondary school children in Nigeria. Also, there seem to be shortage of empirical research with specific consideration of the role of increasing technological penetration among Nigerian undergraduates in their eventual sleep patterns. Leveraging on the most recent approaches to survey on sleep, this present study sought to analyze the prevalent sleep patterns of mathematics education students in Nigeria and the relationships among variables such as screen time during daytime, nighttime phone location, nighttime awakenings and sleep deficiency. The perspective of students on the need for counseling was also considered.

5. Research Questions

The following questions guided the study:

1. What are the electronic devices mathematics education students in Nigeria use in the last hour before going to sleep?
2. How much screen time do mathematics education students in Nigeria spend on electronic devices on week days?
3. What is the pattern of nighttime phone location among mathematics education students in Nigeria?
4. How often do mathematics education students in Nigeria awake to attend to phones in a typical nighttime?
5. What is the mean sleep duration among mathematics education students in Nigeria?
6. What is the level of sleep duration among mathematics education students in Nigeria?
7. What proportion of mathematics education students in Nigeria considered the option of seeing a counselor about sleep related problems?

6. Methodology

This study employs the survey research design to investigate the pattern of some sleep variables of mathematics education students in North central Nigeria. The target population is the 5106 mathematics education students from two (2) Federal Universities in North Central Nigeria. The sample

comprises 215 mathematics education students drawn randomly from the two Federal Universities.

The instrument for data collection is the Technology Usage and Sleep Pattern Questionnaire (TUSPQ) which is an adaptation of survey instruments provided by Hysing *et al.* (2015) and Rosen *et al.* (2016). The TUSPQ is made up of nine self-reported items providing responses on use of electronic devices at bedtime, screen time during daytime, bedtime, rise time, sleep onset latency (SOL), wake after sleep onset (WASO), subjective sleep need (SSN), nighttime phone location and nighttime awakenings.

Electronic devices considered in this survey are PC (desktop), laptop, smartphone, MP3 Player, tablet, game console and TV. Bedtime, the time one settles into bed for the night, is reported in hours and minutes (for example 10:36pm). Rise time is the time one gets up from sleep (in the morning) reported in hours and minutes. SOL is the length of time it takes to actually fall asleep after bedtime while WASO is the time duration it takes one to fall back to sleep after waking up in the “middle” of sleep. Both SOL and WASO are reported in minutes as either less than or greater than 60 minutes. Time in bed (TIB) is obtained by subtracting bedtime from rise time. Sleep duration was computed by subtracting the combination of SOL and WASO from TIB, SSN is each individual’s own perceived sleep need reported in hours and minutes. Sleep deficit, a measure of sleep deficiency, was computed by subtracting sleep duration from subjective sleep need. The deficit was categorized into less than 2 hours and greater than (or equal to) 2 hours. All sleep variables are reported based on weekday experience. Nighttime phone location was considered as either close to the participant (under the pillow, on the bed, or next to the bed) or far away from the participant (in the bedroom but not close to the bed, in another room or other location). Nighttime awakenings are categorized into never, once a night and 2 or more times a night.

Statistical tools used for data analysis and presentation in this study are descriptive statistics. Frequency counts, simple percentages and means were used to answer the research questions. Bar charts and pie charts were also employed in the data presentation.

The participants in this survey voluntarily chose to fill out the TUSPQ. Copies of the questionnaire were circulated and retrieved by the researchers through direct contact with the participants.

7. Results

The results of this survey are presented according to the research questions.

7.1. Research Question One

What are the electronic devices mathematics education students in Nigeria use in the last hour before going to sleep?

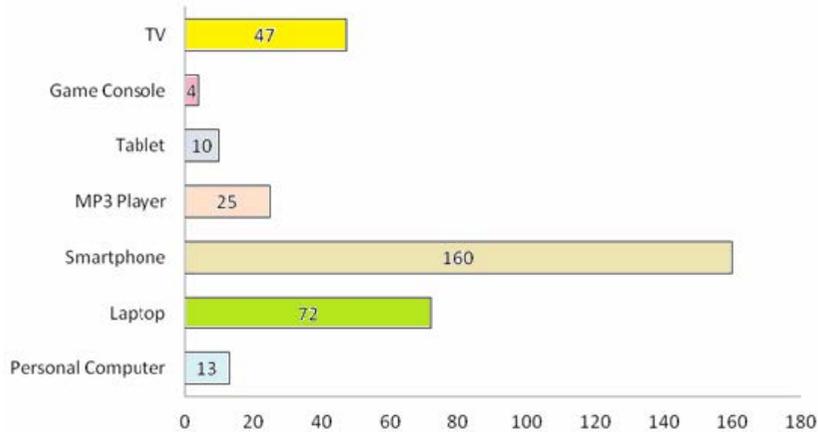


Figure 1. *Electronic Devices Used in the Last Hour before Going to Sleep*

The bar chart in Figure 1 indicated that a high number of mathematics education students in Nigeria use smartphones (160), laptops (72) and TVs (47) in the last hour before going to bed.

7.2. Research Question two

How much screen time do mathematics education students in Nigeria spend on electronic devices on weekdays?

Analysis of results on time spent on electronic devices and activities is presented in five pie charts showing time spent by mathematics education students on Email, TV games, Computer games, Social media, and using electronic devices for other purposes on week days.

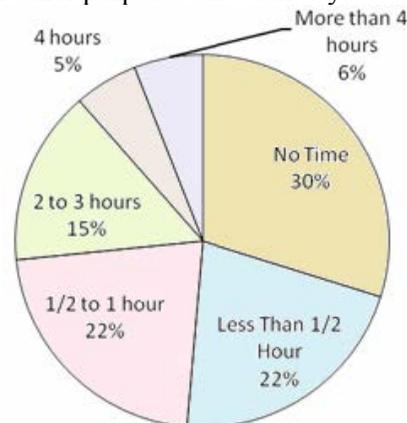


Figure 2. *Time Spent on Email*

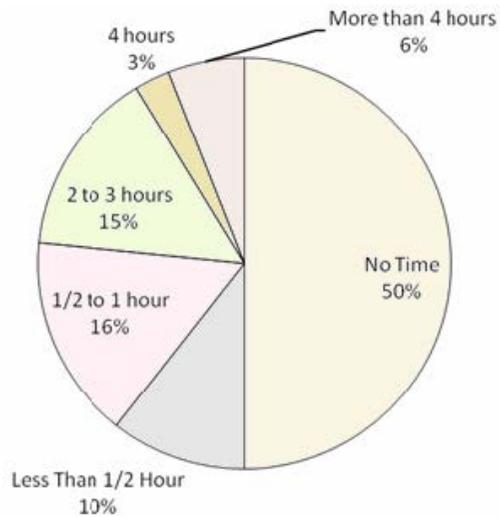


Figure 3. *Time Spent on TV Games*

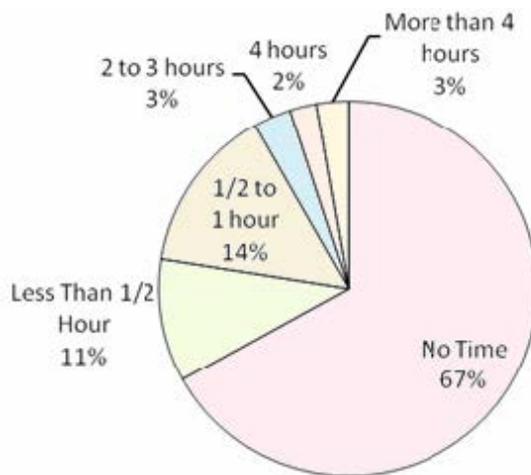


Figure 4. *Time Spent on Computer Games*

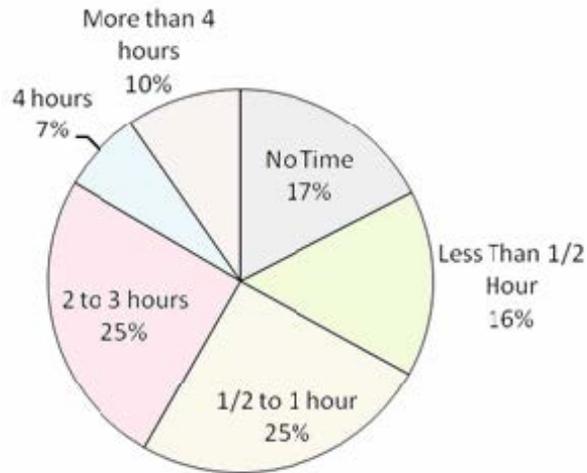


Figure 5. *Time Spent on Social Media*

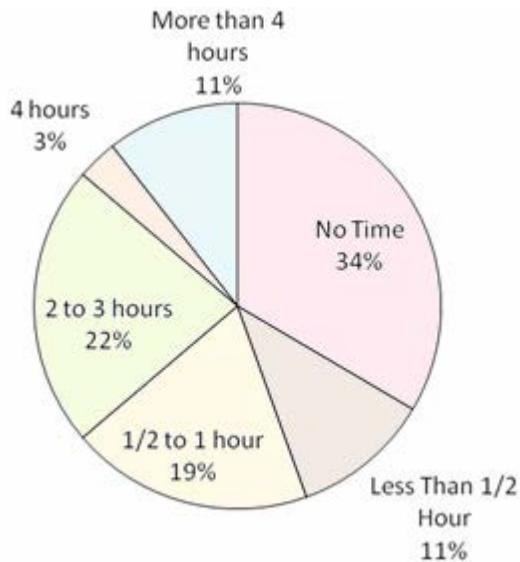


Figure 6. *Time Spent on Digital Devices for other Purposes*

A critical look at the pie charts reveals that the percentage of students spending “No Time” on electronic devices/activities reduced drastically in Figure 5 (Time spent on social media) to a meager 17%, indicating a widespread indulgence in social networking among mathematics education students in Nigeria.

7.3. Research Question Three

What is the pattern of nighttime phone location among mathematics education students in Nigeria?

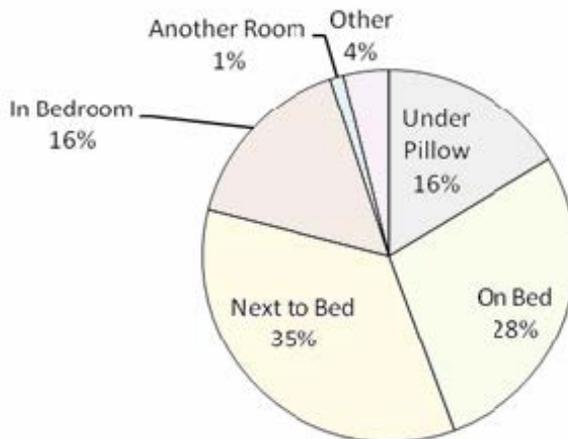


Figure 7. *Nighttime Phone Location among Mathematics Education Students in Nigeria.*

The pie chart on Nighttime Phone Location indicates that 79% of mathematics education students in Nigeria have their phones very close to themselves every night (under pillow, on bed and next to bed). Conversely only 21% of the students keep their phones away from themselves every night (somewhere else in the bedroom, in another room, and other locations).

7.4. Research Question Four

How often do mathematics education students in Nigeria awake to attend to phones in a typical nighttime?

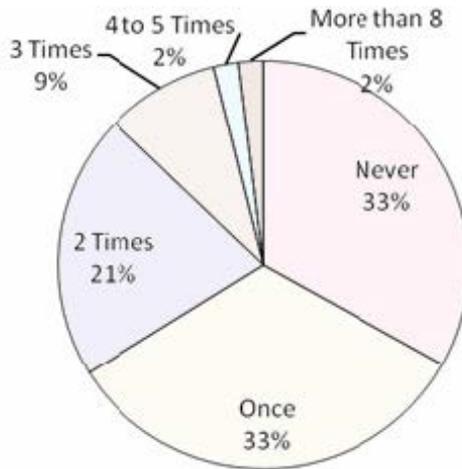


Figure 8. *Night Awakening to Attend to Phone by Mathematics Education students in Nigeria.*

The pie chart in Figure 8 indicates that 34% of the students wake up more than once at night to attend to their mobile devices. The remaining 66% wake up either once to attend to phones or not at all.

7.5. Research Question Five

What is the mean sleep duration among mathematics education students in Nigeria?

S/NO.	TIB	SOL	WASO	SDur [=TIB - (SOL+WASO)]	CatSDur	SSN	SDef [=SSN - SDur]	CatSDef
1	6.40	0.30	0.10	6.00	5 to 6 hours	7.30	1.30	Less than 2 hours
2	8.00	0.30	0.01	7.29	7 to 8 hours	6.00		
3	4.30	1.30	2.00	1.00	Less than 4 hours	6.00	5.00	Greater than 2 hours
4	7.30	0.30	0.30	6.30	6 to 7 hours	6.00		
5	9.30	0.30	1.00	8.30	8 to 9 hours	0.30		
6	7.00	0.30	0.10	6.20	6 to 7 hours	12.00	5.40	Greater than 2 hours
7	6.00	0.30	0.05	5.25	5 to 6 hours	3.30		
8	6.30	1.30	0.30	4.30	4 to 5 hours	1.00		
9	11.00	0.30	0.30	10.00	9 to 10 hours	7.00		
10	5.00	0.30	2.00	2.30	Less than 4 hours	3.00	0.30	Less than 2 hours

11	4.30	0.30	0.20	3.40	Less than 4 hours			
12	5.30	0.30	0.20	4.40	4 to 5 hours	10.00	5.20	Greater than 2 hours
...								
...								
...								
...								
209	5.00	1.30	2.00	1.30	Less than 4 hours	6.00	4.30	Greater than 2 hours
210	8.00	0.30	2.00	5.30	5 to 6 hours	4.00		
211	6.00	1.30	0.30	4.00	4 to 5 hours			
212	6.00	0.30	1.00	4.30	4 to 5 hours	5.00	0.30	Less than 2 hours
213	6.30	1.30	0.05	4.55	4 to 5 hours	4.00		
214	5.10	0.30	0.30	4.10	4 to 5 hours	3.00		
215	6.00	1.30	1.30	3.00	Less than 4 hours	1.00		
MEANS	6.83	0.57	0.72	5.19		5.51	2.35	
MEANS (Interpreted)	7 hours 23 min.	57 min.	1 hour 12 min.	5 hours 19 min.		5 hours 51 min.	2 hours 35 min.	
Std Dev	1.86	0.45	0.87	1.99		2.70	1.82	
MIN	2.00	0.30	0.01	0.30		0.30	0.10	
MAX	16.30	1.30	6.00	13.25		14.00	8.00	

The data in Table 2 is an abridged version of the full data set used in this study. The full data set is downloadable from the Open Science Foundation platform (at https://osf.io/6k7fa/?view_only=ebb824afc1e848428a48351ec3e2864c)

The results in Table 2 reveal a mean sleep duration of 5 hours and 19 minutes which falls short of all the recommended ranges earlier displayed in Table 1. This implies that mathematics education students in Nigeria have insufficient sleep. Figure 9 shows the categories of sleep duration among students of mathematics education in Nigeria.

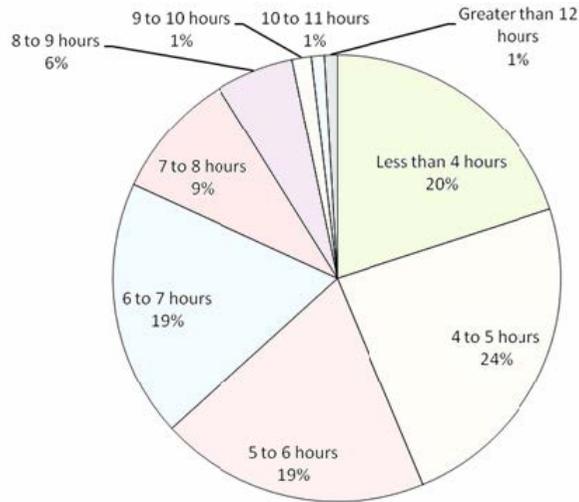


Figure 9. *Categories of Sleep Duration among mathematics Education students in Nigeria.*

7.6. Research Question Six

What is the level of sleep deficit among mathematics education students in Nigeria?

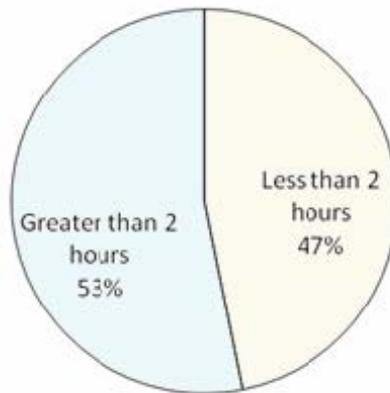


Figure 10. *Categories of Sleep deficiency among mathematics education Students in Nigeria.*

The data in Table 2 shows that students of mathematics education students in Nigeria have a sleep deficit of 2hours and 35 minutes. The pie chart on categories of sleep deficiency reveals that a larger proportion (53%) of mathematics education students have sleep deficit greater than 2 hours, a cause for concern when compared to expected ranges below 2 hours.

7.7. Research Question Seven

What proportion of mathematics education students in Nigeria considered the option of seeing a counselor about sleep related problems?

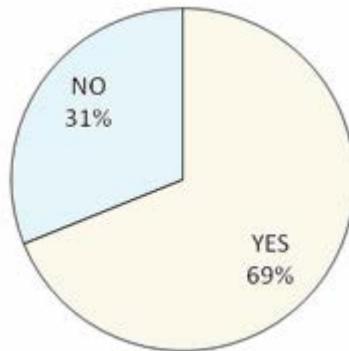


Figure 11. *Proportion of Mathematics Education Students who thought about seeing Counselor about Sleep Related Problem.*

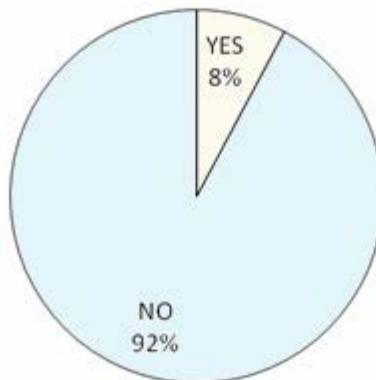


Figure 12. *Proportion of Mathematics Education Students who actually Considered Counseling about Sleep-related Problems.*

8. Discussion

8.1. Use of Electronic devices shortly before bedtime

The outcome of this study has revealed that a high number of mathematics education students in Nigeria use Smartphone, laptops and TVs in the last hour before going to bed. This use of light-emitting digital devices shortly before bedtime has adverse effect on sleep quality. Cain and Gradisar (2010) suggests three likely routes linking digital media to sleep, namely direct displacement of sleep by media use, for instance getting involved in digital activities and staying up late to complete it; heightened physiological arousal associated with the use of digital media close to bedtime, for example playing an exciting game on a smartphone; and bright screens affecting physiological markers that are linked to sleep, such as melatonin. Although the results from analysis of data in research questions one and two does not conclude causality, earlier studies like that of Tavernier and Willoughlay (2014) did conclude that students with sleep problems spend more time using digital media.

The results in Figures 2 to 6 indicate students of mathematics education in Nigeria are spending more time on social media, TV games and computer games. These outcomes agree with the findings of Orzech, Grandner, Roane & Carskadon (2016) who observed that a longer duration of digital media use was associated with reduced total sleep time and later bedtime. When considered alongside Figure 1, the results emerging from this study of mathematics education students in Nigeria affirm that activities in the last hour before bedtime play great roles in digital media's effect on sleep, with computer work, surfing the internet and using digital devices for other purposes showing the strongest relationship to multiple sleep variables (Orzech *et al.*, 2016). These findings, when taken in the light of the statistics in Table 2, add to the evidence that the use of light-emitting electronic devices before bedtime prolongs the time it takes to fall asleep, delays the circadian clock and perpetuate sleep deficiency, resulting in adverse impacts on performance, health and safety (Chang, Aeschbach, Duffy & Czeister, 2015). Similar outcomes were reported by Fuller, Lehman, Hicks and Novick (2017) and Kubiszewski, Fontaine, Rusch and Hazourd (2014) who established that electronic media use by students are associated with impaired sleep quality and late bedtimes. The adverse impact of electronic use on sleep quality has also been linked to availability of high speed broadband internet in recent years (Billari, Guintella & Luca, 2017).

The mathematics education students used in this study, evidently, spend a large amount of time during the day and at bedtime using electronic devices. Daytime and bedtime use of electronic devices are both related to sleep measures with an increased risk of short sleep duration, long sleep onset latency and increased sleep deficiency (Hysing *et al.*, 2015). For

undergraduates with serious school work, these risks translate into grave consequences for academic progress. The attendant sleepiness during the course of a school day has an impact on their learning, focus and memory (Huamani & de Castro, 2014; Agbo-Egwu, Abah & Anyagh, 2017). When students lose sleep, they disrupt their sleep cycles and their bodies respond by decreasing their ability to concentrate and complete complex tasks (Otenyo, 2015).

8.2. Nighttime Phone Location and Sleep Quality

The result of this study has revealed that 79% of mathematics education students in Nigeria have their phones very close to themselves every night. Consequently, 34% of the students wake up more than once to attend to prompts, notifications and calls on their smartphone, a proportion far above the 10% reported for secondary school teenagers in the same region as this present study (Sanya *et al.*, 2015). This pattern of phone location and night awakenings contribute to increase in wake after sleep onset (WASO) time thereby reducing the quality of sleep the undergraduates get at night. The students covered in this survey have a mean WASO time of 1 hour and 12 minutes, and a reported peak WASO time of 6 hours (Table 2). These statistics about phone location are in tandem with the findings of Exelmans and Van den Bulck (2016) who report that six out of ten (60%) Flemish adults took their mobile phone with them to the bedroom, interactively engaging with the device after lights out and thus experienced longer sleep latency, worse sleep efficiency, more sleep disturbance and more daytime dysfunction. Similar outcomes are reported by Kawada *et al.* (2017) who observed that in the cases when night sleep would almost start, phone calls could come from some person, with 102 students of 537 soon responding to it, whereas 200 checked the call bud did not respond and felt in sleep. The observed poor sleep quality have been established through hierarchical linear regression to predict affect the next day (Van Zundert *et al.*, 2015).

The pattern of night awakening displayed in Figures 8 points to bad sleep quality which has consistently been associated with the mobile phone use and a number of devices in the bedroom (Bruni *et al.*, 2015). Earlier works by Amra *et al.* (2017) indicate that adjusted binary and multi-nominal logistic regression models showed late-night call users were 1.39 times more likely to have a poor sleep quality than non-users. Proper sleep hygiene is important in optimizing sleep and minimizing sleep deficit. The bedroom should only be used for sleep, and consequently, students should ensure televisions, personal electronic devices and other blue-light distractions are turned off at night or removed from the bedroom.

The findings on nighttime phone location and night awakening also re-echo the survey results of the Headmaster's and Headmistress' Conference - HMC (2016) which reports that almost half (42%) of students keep their

phone next to their bed at night. 68% of students in the HMC survey admits that using their mobile devices at night affects their school work while a quarter of students (25%) also say they feel tired during the day because of how often they wake up to use their mobile device at night. In this same vein, Lee, Wuertz, Rogers and Chen (2013) observed that compared to the good sleepers, the poor sleepers reported more daytime sleepiness, depressive symptoms and physical symptoms, indicating that sleep disturbances are significant predictors for depression.

8.3. Sleep Quality of Mathematics Education Students in Nigeria

The mean sleep duration of 5 hours and 19 minutes observed from students in this survey is a long way below all known recommendations for normal sleep. This short sleep duration translates to a sleep deficit of 2 hours and 35 minutes and all its attendant implications for the mental well-being of mathematics education students in Nigerian universities. Considering that sleep hygiene is a modifiable risk factor for positive and mental aspects of health, the result presented in Table 2 supports the report of Peach, Gaultney and Gray (2016) that poor sleep hygiene yields significant direct and indirect effects on both depression and subjective well-being. These outcomes are also in consonance with the findings of Spiekinyte *et al.* (2016) who conclude that two-third of medical students reported less the 7 hours of actual sleep and every third student rated subjective sleep quality as poor with an associated lower level of academic achievements. Similarly, de Araujo *et al.* (2013) reports a sleep duration of 6.3 hours among Brazilian College students along with 54% of students presenting poor subjective sleep quality. Evidently, after students transit from secondary schools to university, the outcomes of this present survey has indicated that the border line night time sleep duration earlier reported by Sanya *et al.* (2015) has deteriorated into tangible sleep deficiency, a real cause to worry for the nation's higher education. Similar reasoning can be inferred in comparing the findings of this study to that of Maduabuchi *et al.* (2014) across all sleep characteristics presented in Table 2.

Although this present study did not correlate sleep quality to academic achievement in terms of grade point averages, similar studies have reported that academic performance was significantly associated with nocturnal sleep time, sleep latency and sleep disorders (Reisi *et al.*, 2017). Since academic performance entails the overall well-being of an individual with respect to prescribed tasks (Abakpa, Abah & Agbo-Egwu, 2018), it is not far-fetched that sleep deficiency, which is known to reduce concentration, is a predictor. Relatedly, Mirghani *et al.* (2015) report that a significant difference between the excellent and average groups of medical students in Sudanese universities was found for overall sleep quality, subjective sleep rating, bedtime later than midnight, sleep latency and daytime dysfunction, with the mean sleeping hours (7 ± 1.9) and (6.3 ± 1.9) for the groups respectively. A much earlier

study emphatically concluded that many college students are at risk for sleep disorders, and those at risk may also be at risk of academic failure (Gaultnev 2010).

In this study, 53% reports sleep deficiency of 2 hours and above (Figure 10). This particular outcome agrees with Schlarb *et al.* (2017) who report that more than one-third (36.9%) of German university students reported poor sleep, moderately correlating with anxiety, depression and somatic complaints. This finding taken in the context of other result in this study showed that sleep is a key factor that cannot be over looked, considering the association between insufficient sleep and poor mental health, longer time spent on social media and more frequent engagement of problem behaviour (Kristjansson, 2017; Abakpa, Abah & Agbo-Egwu, 2018). Obviously, with the liberty enjoyed in university education comes the responsibility and the need to blend lifestyle with learning and moderate all other factors towards a befitting academic performance.

9. Implications for Counseling in Higher Education

Centres for Counseling and Human Development (CCHDs) are gradually becoming integral components of higher education management in Nigeria. In every university, the CCHD is saddled with the responsibility of guiding and counseling students on both academic and non-academic issues in the course of their stay in the higher institution. Staff of CCHD takes note of counseling needs of students, right from the initial registration session with the Centre and subsequent referrals from Departments and Faculties as well as personal scheduled and unscheduled visits. By convention, all staff of the university who has regular contacts with students are required to look out for possible indicators of distress such as sudden changes in emotions, repeated requests for special considerations and sudden change in academic performance manifested via lower grades, unexplained absences from classes, loss of motivation for academic work or participation in class and sleepiness in class.

Often, sleep problem can start if the student becomes worried about not sleeping, and this in turn can make it more difficult to sleep. The Student Counseling Service (2012) observes that students become caught in a vicious cycle similar to the diagram in Figure 13.

Disturbed sleeping can be described as one or all of the following:

- Difficulty getting off to sleep
- Difficulty staying asleep e.g. waking several times in the night around 2am or 3am.
- Waking early
- Managing to sleep, but on waking, not feeling refreshed.

(Student Counseling Service, 2012)

Consequently, for a student to be described as an “insomniac” (a student suffering sleep disorder), their sleep difficulty has had to have occurred on 3 or more nights per week and for this to be the norm for them for at least 6 months (Student Counseling Service, 2012). The student in this condition obviously requires counseling. But more often than not, students tend to be reluctant about seeking help for sleep problems as revealed by the results of the study. The outcome in the pie chart in Figures 11 shows that 69% of mathematics education students considered the option of seeing a counselor about sleep related problems, while Figure 12 indicates that only 8% of the students actually consulted counseling while on the university campus. This finding supports Zochil and Thorsteinsson (2018) who reported that high levels of depression, anxiety and stress were significantly associated with decreased sleep quality or decreased help seeking intention.

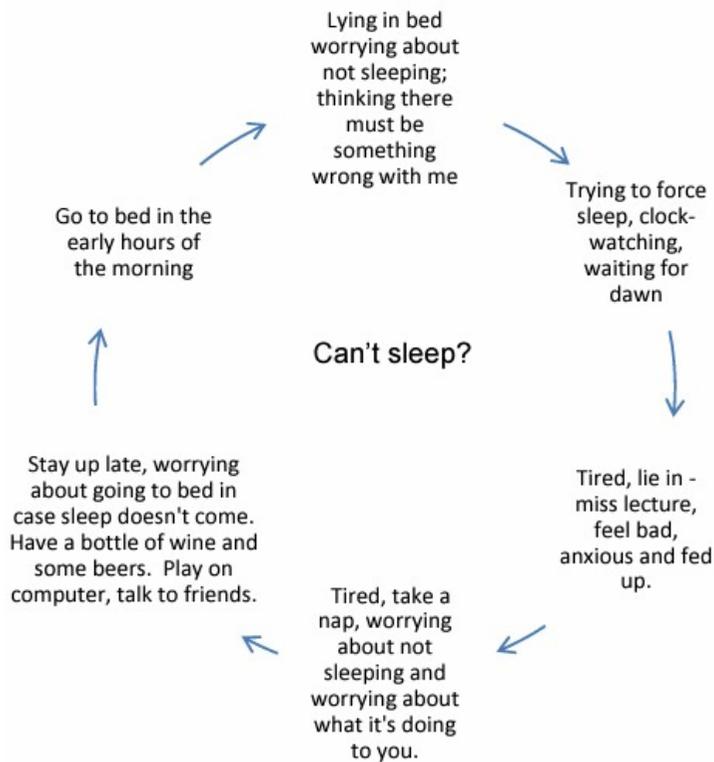


Figure 13. *The Vicious Cycle of sleep problem* (Source: Student Counseling service, 2012)

The outcomes on low level of student consultation of university counseling service with respect to sleep related problems, however contradicts the findings of Pheko, Chilisa, Balogun and Kgathi (2013) who found that Botswana University students had moderate intentions of seeking psychological help. The results, however, agree with Brown, Qin and Esmail (2017) whose outcome show that 80.6% of do not seek help for sleep problems though sleep problems are widely reported. Another study by Qin and Brown (2017) also found that only 18.9% of university students living in residence sought help about sleep problems after 66.8% indicated sleep deficiency.

In the face of such widespread reluctance in accessing professional support, counselors and members of staff of higher education should offer students the opportunity to discuss their reasons and concerns. Some students may be reluctant to talk to a counselor or doctor but may be willing to talk to a student adviser, an examination officer or a chaplain. It is important to discuss the various support options available to them. Faculties who directly observe symptoms of poor sleep habit in students may disclose to them in trust how worried they are about the students' academic potential being thwarted by sleep related problems and other form of distress. Students with sleep deficiency can always get simple pieces of advice such as avoiding reading, watching TV, playing on their laptop or speaking on the phone while in bed. Further methods to enhance sleep provided by Oelschlager (n. d.) and National Sleep Foundation (2000) can be recommended.

The work of CCHD on the university campus is often divided into remedial and preventive interventions (Gilbert & Weaver, 2010). All too often, campus counselors assess the sleep habit of a client only if depression is reported by the student or suspected by the psychologist. If this is not the case, Gilbert and Weaver (2010) note, many counselors neglect asking about sleep habits, even if academic functioning is part of the client's presenting problem. This approach is problematic in itself, considering that many of these non-depressed students will have poor sleep quality and further, it is highly probable that such poor sleep quality will negatively impact their academic functioning. A safer approach will be that university counselors routinely assess the sleep habits of all clients, but especially of those struggling academically. Gilbert and Weaver (2010) suggested that if poor sleep appears to be problematic or contributory to presenting concerns and/or academic functioning, clients should be provided with patient education about the importance of sleep, be given information on sleep hygiene and be encouraged and helped to improve their sleep habits.

Preventive interventions for students affected by sleep related problems is necessary in view of research outcomes showing that lack of insight is a barrier to help seeking as a person needs to be aware there is problem that requires intervention in order to make the decision to seek help (Zochil &

Thorsteinsson, 2018). Awareness campaigns aimed at improving insight to accurately identify poor sleep quality are recommended. CCHDs perhaps in collaboration with health services, should provide psycho-educational information aimed at educating mathematics education students in Nigeria about the importance of good sleep quality for academic success and providing advice on how to achieve it. Other research results have highlighted the need for curricular and extra-curricular education and counseling about healthy sleep patterns (Alfakhri *et al.*, 2015). Such prevention efforts may entail the integration of sleep education into relevant ongoing general studies courses.

10. Conclusion

This study has examined the pattern of sleep characteristics of mathematics education students in Nigeria along with their counseling seeking intention. The sleep variables were considered with Nigeria's rapidly growing technology penetration in mind. The theoretical foundation of the study was grounded on the restoration theory of sleep. After a consideration of related empirical studies from within and outside Nigeria, it was established that although evidences abound on the sleep patterns of diverse demographic categories from Nigeria, very few studies considered specific measurement of sleep variables. In this sense, this study contributes to the existing body of sleep research evidence from Nigeria, particularly in terms of the non-medical approach to sleep study.

The findings of this survey strengthen the idea of a global sleep crisis, with university students in Nigeria worst hit. The dismal sleep duration of 5 hours and 19 minutes observed in this study could be viewed as a time-bomb waiting to explode. Although the study did not correlate sleep quality to any student attainment index, the links to mental health, physical well-being and academic achievement are well rooted in available literature. Hence the need for effective and efficient university counseling service.

Centres for Counseling and Human Development (CCHDs) of higher educational institutions in Nigeria need to brace up for the task of providing proactive, remedial and preventive interventions to students with respect to sleep related problems. Like their counterparts in many developed countries, Nigeria CCHDs must draw serious attention to the prevalence of sleep deficiency among students and its attendant consequences on their general well-being. As a matter of urgency, the ramifications of sleep hygiene should be included in counseling booklets and manuals issued to students during the compulsory registration with the centres on entry in the university.

Calls have also been made for the inclusion of sleep studies in both curricular and extra-curricular programmes of Nigerian universities. Campus-wide campaigns will spread the message on the importance of sleep to health

and the need to seek help where consistent problems with sleep are noticed. Such information programmes can be networked among universities in Nigeria to conglomerate into a national programme of the Federal Ministries of Education and Health.

The depth of this study can be considered a scratch on the surface of a behemoth societal problem. The outcomes of the study are, in a way, intended to spur interest in the study of sleep in Nigeria using more methodical approaches. This effort from a non-medical standpoint is an indication of the versatility of research needed to defuse the sleep time-bomb in the country. As a matter of fact, despite the robustness of this present study, a wide range of gaps exists for future studies to cover. A more detailed study may choose to control for other variables that are extraneous to sleep effects and determine exact impact on the academic achievement of higher education students. The relationship of quality sleep with other problem behaviours among Nigerian students and youths can also be examined by future researchers.

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Appendix A: Technology Usage and Sleep Pattern Questionnaire (TUSPQ)

Course Option: B.Sc.(Ed.)..... Sex:..... Reg. No.:.....
(This information will be held confidential. Only needed for correlational purpose)

Technology Usage and Sleep Pattern Questionnaire (TUSPQ)

- How many of the listed electronic devices do you use in your bedroom the last hour before going to sleep? (Please tick accordingly. Tick as much as you use)

<input type="checkbox"/> Personal Computer	<input type="checkbox"/> Laptop	<input type="checkbox"/> Smartphone
<input type="checkbox"/> MP3 Player		
<input type="checkbox"/> Tablet	<input type="checkbox"/> Game Console	<input type="checkbox"/> TV
- Outside school hours, how much time do you usually spend on the following during weekdays?

TV-games	<input type="checkbox"/> No time	<input type="checkbox"/> Less than ½ hour	<input type="checkbox"/> ½ hour to 1 hour
	<input type="checkbox"/> 2-3 hours	<input type="checkbox"/> 4 hours	<input type="checkbox"/> More than 4 hours
Computer games	<input type="checkbox"/> No time	<input type="checkbox"/> Less than ½ hour	<input type="checkbox"/> ½ hour to 1 hour
	<input type="checkbox"/> 2-3 hours	<input type="checkbox"/> 4 hours	<input type="checkbox"/> More than 4 hours
Social Media (Chatting)	<input type="checkbox"/> No time	<input type="checkbox"/> Less than ½ hour	
	<input type="checkbox"/> ½ hour to 1 hour	<input type="checkbox"/> 2-3 hours	
	<input type="checkbox"/> 4 hours	<input type="checkbox"/> More than 4 hours	
Writing and reading emails	<input type="checkbox"/> No time	<input type="checkbox"/> Less than ½ hour	
	<input type="checkbox"/> ½ hour to 1 hour	<input type="checkbox"/> 2-3 hours	
	<input type="checkbox"/> 4 hours	<input type="checkbox"/> More than 4 hours	
Using PC (or Laptop) for other purposes	<input type="checkbox"/> No time	<input type="checkbox"/> Less than ½ hour	
<input type="checkbox"/> ½ hour to 1 hour	<input type="checkbox"/> 2-3 hours	<input type="checkbox"/> 4 hours	<input type="checkbox"/> More than 4 hours
- When do you usually go to bed on a normal weekday? (e.g: 10:15pm)
Please specify.....
- When do you usually get up from the bed on a normal weekday? (e.g: 6:15am)
Please specify.....
- While in bed for sleep, how long does it take you to actually fall asleep?
 More Than 60 Minutes Less Than 60 Minutes
- If you wake up in the middle of sleep, how long does it take you to fall back to sleep?
Please specify (in minutes or hours).....
- If you have your way, how much sleep do you think you need to feel really rested?
Please specify (hours and minutes).....
- Where do you usually put your phone when you go to sleep?

<input type="checkbox"/> Under your pillow	<input type="checkbox"/> On your bed	<input type="checkbox"/> Next to your bed
<input type="checkbox"/> In your bedroom but not close to your bed		<input type="checkbox"/> In another room
<input type="checkbox"/> Other (Please specify).....		

9. On a typical night, after you have fallen asleep, how often do you awaken and check your phone for something other than checking time?
 Never Once 2 times 3 times 4-5 times 6-8 times More than 8 times
10. Do you think you should talk to a professional (Guidance Counselor) if you have Sleep Problems? YES NO
11. Have you ever consulted a professional Counselor about sleep issues before?
 YES NO
{If YES, How many times?.....}

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University Students Perceptions on the Free Mass Training Courses Online

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Abstract: This research explores the opinions, focused on advantages and weaknesses, which university students have about MOOCs (Massive Open Online Courses) today. The study constituted by perceptions is exposed by 53 students of Degree on Social Education of the Pablo de Olavide University. Through a methodology of qualitative quality, the following advantages were found: free (22.27%), favor the formation of disadvantaged groups (17.54%), have a flexible time (12.80%), help the development of virtual collaboration networks and communities (11.37%), with the availability of the university content and resources (7.11%), obtaining certificates (5.69%) and discussion forums to solve doubts (5.21%). The weaknesses of the results of MOOCs: the lack of an adequate tutorial follow-up (16.36%), present a saturation of information (14.09%), a high abandonment rate (11.36%) and an 11,82% indicate that generally the organization chart and the structure of these courses are related to the standard form with a poor pedagogical design. Likewise, 9.55% thought that the system of insufficient evaluation is based mainly on automated questionnaires.

Key-words: Higher Education, MOOC, Virtual Education, Educational Innovation, Lifelong Education.

1. Introduction

The evolution and insertion of information and communication technologies (ICT) have managed to be a core of transformation, where the application, generation and accumulation of knowledge increases

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exponentially globally (Martínez-Domínguez, 2018). In this massive panorama arise the open online courses (MOOCs): Massive Open Online Courses) in Higher Education have aroused great interest in these years (Karsenti, 2013).

MOOCs arise from a social philosophy of open learning and connect with a trend that has had and has different names under the concept of "Open Information": *Open Source, Open Standards, Open Access*, etc. Open education is not a new idea, but in many countries it is considered a right, and public education guarantees that right to all citizens (UNESCO, 2002, 2012).

The education of the 21st century demands a formative action that enhances creativity and the continuous search for knowledge, as well as its construction and reconstruction from all areas and areas of the human being (Marín-Díaz, 2017).

In turn, today's society experiences the dynamics of technological advances and their vertiginous changes. For example, in the last decades of the twentieth century the spread and popularity in the use of the Internet and mobile devices was witnessed; and at the beginning of this century, the increase in the number of users is perceived, due to the ease of access to such resources due to the decrease in their costs.

This situation has significantly modified the forms of social communication, consumption habits and the processes of obtaining and exchanging information (Madrigal-Lozano et al., 2016). Finally, we consider, in accordance with Martín-Padilla (2017), under this socio-technological landscape so-called MOOC shines with its own light.

The term "MOOC" (Massive Open Online Course), was introduced in Canada by Dave Cormier and Bryan Alexander who coined the acronym to designate an online course conducted by George Siemens and Stephen Downes in 2008. The course entitled "Connectivism and Connective Knowledge" was conducted by 25 students who paid their tuition and earned their degree, but was followed free of charge and without accreditation by 2,300 students and the general public through the Internet. And it is based on directed learning platforms, from the principles of ubiquity, self-evaluation, modularity and video simulation (Vázquez-Cano, López-Meneses and Sarasola, 2013). In addition, it is a relatively recent phenomenon (Graham and Fredenberg, 2015).

In 2008, the worldwide phenomenon of MOOCs appeared as an important development of online education (Mackness, Mak and Williams, 2010). And they are being considered by many researchers as a tsunami that is beginning to affect the traditional structure of university and training organization (Boxall, 2012) or a revolution with great potential in the educational and formative world (Bouchard, 2011; Aguaded, Vázquez-Cano and Sevillano, 2013).

In the scientific literature, MOOCs are described as virtual social connectivity environments over an area of study with an open teaching (McAuley et al. 2010; Vázquez-Cano, López-Meneses and Barroso, 2015; Aguaded, Vázquez-Cano and López Meneses, 2016). Likewise, these amplify access to training by offering learning opportunities regardless of affiliation to a particular institution (Durall et al., 2012), this can be a turning point in Higher Education (Vázquez-Cano et al, 2014; López-Meneses, 2017). In turn, the number of massive open and online courses (MOOC) has grown exponentially in a few years since they were introduced (Bartolomé and Steffens, 2015) and is the subject of didactic and formative reflection among different authors (Zapata, 2013; Ramírez -Fernández, Salmerón and López-Meneses, 2015) and by Higher Education institutions in the globalized world (Haggard, 2013). This implies an innovative model of mass education that exploits in a paradigmatic way the potential and relevance that Information and Communication Technologies currently have in society (Pérez-Parras and Gómez-Galán, 2015).

MOOCs displace - some would say "exceed" - the hierarchical relationship between teachers and students, so that the learning process is shared (hence the references in the MOOC literature to the idea of a "distributed responsibility" in learning), and the students also become content generators and connections between different aspects of the course (Vázquez-Cano and López-Meneses, 2014; Vázquez-Cano, López-Meneses and Barroso, 2015).

In this sense, mass and open training is a challenge for university institutions and the teaching community that must redefine the current methodological paradigm to enter a more open, interactive, collaborative and ubiquitous new curricular forms, in symbiosis with a more dynamic evaluation, holistic and human inserted in more flexible and diversified curriculum adapted to the labor ecosystem to promote and facilitate the students the implementation of their own competence itinerary for their academic and professional development (López-Meneses, 2017).

In accordance with different authors (Castaño y Cabero, 2013, Kregor, Padgett and Brown, 2013; Yuan and Powell, 2013; Siemens, 2013 and Gómez-Galán, 2014) the following characteristics of MOOCs can be established: they are *massive* courses, means that all students who wish to enroll can participate in them, mainly without restrictions of any kind and allows the large-scale interactive participation of hundreds of students. They are scalable, not being exclusive like those that have hundreds or thousands of people.

The mass consideration refers to both the number of students that the course can receive and the impact of it, and the students can, from it, create different subnets based on their geographical location, language, interest, etc. They are *open* since, in principle, they are accessible for free. They are

available *online* and all learning activities, content, communications, etc., are developed in a virtual environment. And, of course, these are *courses*, since they are structured in a temporary, orderly and sequenced manner, with a beginning and an end.

Currently, in Higher Education, MOOCs are reflected as the revolution of university education (Pappano, 2012; Little, 2013) and it is obvious that their use in the university scientific community can be an increasingly sustainable curricular option for the expansion of scientific knowledge and university praxis in the new massive democratic learning scenarios (León-Urrutia, López-Meneses and Vázquez-Cano, 2017).

Definitely, a MOOC is a way to learn, ideally it is an open, participatory, distributed course and a lifelong learning network, it is a way of connection and collaboration, it is a shared work (Vizoso-Martín, 2013) and it is obvious that its use in the university scientific community may be an increasingly sustainable curricular option for the expansion of scientific knowledge and university praxis in the new massive democratic learning scenarios. (López-Meneses, Vázquez-Cano & Román, 2015).

2. Study Scenario

It is analyzed an experience of an university innovation on the perception of 53 students, related to the advantages and disadvantages of MOOCs in the social and educational fields, corresponding to the 2017-18 academic year.

This university educational action takes place during the month of February in the subject: "Information and Communication Technologies in Social Education", corresponding to the first year of the degree of Social Education Degree of the Faculty of Social Sciences of the Pablo de Olavide, from Seville (Spain) with a charge of 7.3 ECTS Credits (European Credit Transfer System).

With respect to the study program, this subject belongs to the area of Didactics and Educational Organization and is organized around various thematic blocks.

In our case, it corresponds to the fourth core of contents called: "Social / cross-cutting issues", specifically to Theme 8: "*The MOOCs and their impact on the social and educational field*". Figure 1 shows the conceptual scheme of the content blocks of the subject.

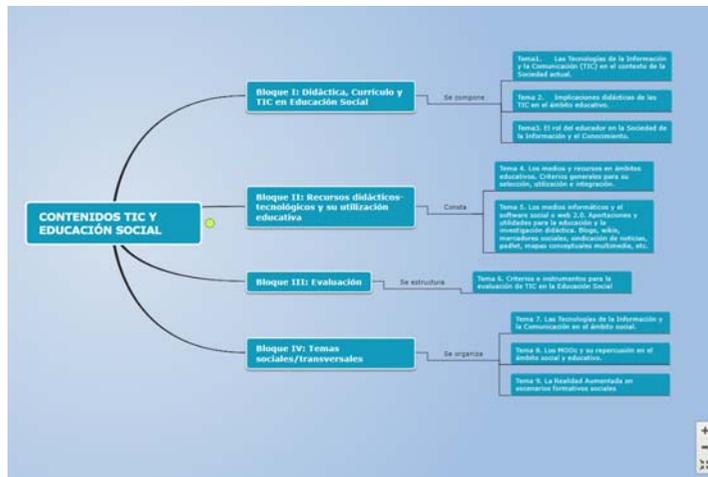


Figure 1. Content blocks that constitute the subject: "ICT and Social Education". URL: <http://bit.ly/2xwjh4x>

The innovative experience suggests that the students of the first Social Education Degree course realize a reflection on the strengths and weaknesses of MOOC courses in the socio-educational fields. In this sense, each student prepared a personal edublog for the subject on the activities carried out in it, being one of its tabs the MOOCs where they had to respond to said reflection, among other aspects. Next, an edublog prepared by a student of the Degree on Social Education with the subject: "ICT and Social Education" corresponding to the academic year 2017-18 (Figure 2) is presented as an example.



Figure 2. Edublog of a Social Education Degree student academic year 2017_18
URL: <https://marines3000.blogspot.com/p/mooc.html>

Below we can see the didactic objectives, the development of the research and the most relevant results achieved during the development of this innovative university experience developed at the Faculty of Social Sciences of the Pablo de Olavide University of Seville.

3. Objectives

This research was structured according to the following priority objectives:

- Analyze student opinions regarding the strengths of MOOC courses in the socio-educational fields of the first course of the subject about Information and Communication Technologies (ICT) in Social Education corresponding to the Degree in Education Social, in the academic year 2017/18.
- Know the main weaknesses of MOOC courses from the perspective of the student of the subject about Information and Communication Technologies (ICT) of the 2017/18 academic year.
- Know and use edublogs as teaching resources in the socio-educational field.

4. Research methodology

The research methodology was qualitative and descriptive. The sample was formed by a total of 53 students of the degree of Social Education Degree of the Faculty of Social Sciences of the Pablo de Olavide University of Seville of the academic year 2017/18.

To analyze the different documents prepared by the students (comments made in the individual edublog) throughout the didactic experience, we take as a frame of reference the guidelines established by different experts (Bogdan and Biklen, 1992; Miles and Huberman, 1994 and Monje, 2011).

In the first phase, the data was reduced by categorizing and coding the information obtained. Categorization involved simplifying and selecting the information to make it more manageable. To do this we follow the following steps:

- Separation of units to identify significant segments of information on the reflections made on the advantages and weaknesses of MOOC courses in socio-educational fields.
- Identification and classification of units to conceptually group them into groups that shared the same topic with meaning.
- Synthesis and grouping of the different information units.

During the coding, each textual unit was identified with its corresponding category through a mixed procedure (inductive-deductive) to then proceed to its frequency count and percentages.

Finally, the analysis process was completed with a second phase in which the different categorized information units were interpreted to facilitate the inference and interpretation phase of the results set out below.

5. Results of the innovative university experience

In this section, the analysis and interpretation of the 53 contributions made by the students of the first Social Education Degree course of the 2017/18 academic year is carried out.

In the first instance, the advantages of MOOC courses shown by the 53 students corresponding to the 2017/18 academic year are shown in Figure 3.

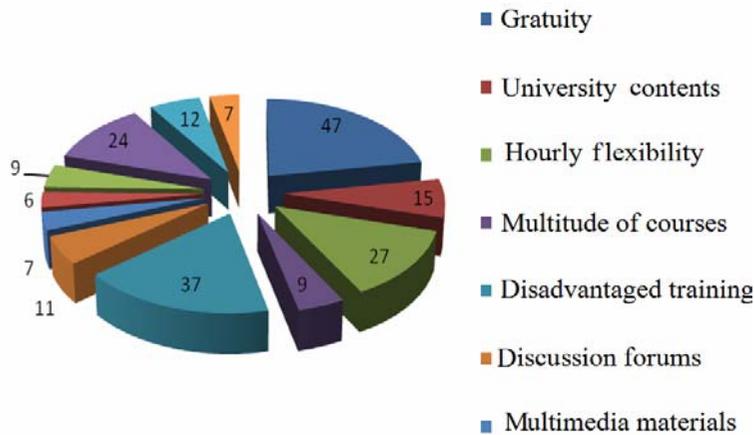


Figure 3. *Frequency of responses of students of Social Education Degree (2017/18) concerning the possibilities of MOOC courses.*

The students corresponding to the 2017/18 academic year showed the following advantages related to MOOCs: Gratuity (22.27%), favors the training of disadvantaged groups (17.54%), hourly flexibility (12.80%), energizes the development of networks and virtual communities of collaboration (11.37%), with the availability of university content and resources (7.11%); Obtaining certificates (5.69%) and discussion forums to answer questions (5.21%). And with less than 5% they say that there is a wide

variety of scientific topics located in different MOOC platforms, it helps the initial and permanent training of teachers, there is no enrollment limit and they offer multimedia materials that can be saved in the computer to your study.

Consequently, when the results obtained are glimpsed, the student of this academic degree expresses the main advantages of MOOC courses as free and flexible hours to perform them. In addition, they offer a sustainable and promising approach to online learning to students around the world (O'Connor, 2014; Ossiannilsson, Altinay, and Altinay, 2016; Sirignano, Gómez-Galán, and López-Meneses, 2018). These are characteristics that are present in practically all the works analyzed and cited in the review of the scientific literature. It is a differentiating element of MOOC courses.

Finally, as expressed by more than 17% of the students of the academic year, in accordance with Vázquez-Cano, López-Meneses and Sarasola (2013) they can help the digital inclusion of groups at risk of exclusion and marginal groups and with more than 7% state that they provide a great diversity of interesting and high quality content as indicated by other authors (Sandeen, 2013, Gillani & Eynon, 2014, Jordan, 2014, Engle et al., 2015).

In this sense, the massive nature of this type of training can mark a before and after in the coverage of teachers' needs, especially in Africa and Asia, which is where it is most needed (Silvia-Peña, 2014).

Once the corresponding perceptions of the student with the strengths of the MOOC courses have been analyzed, the percentage analysis of the 53 students of the 2017/18 academic year linked to the main weaknesses of the MOOC courses is shown in Figure 4. Among them, the lack of adequate tutorial follow-up (16.36%).

In sequence, 14.09% state that MOOCs have a saturation and dispersion of information to the detriment of the quality of the course. 11.82% indicate that generally the organization chart and structure of these courses are designed in a standard way with a poor pedagogical design: Likewise, 9.55% thought they showed an insufficient evaluation system, based mainly on automated questionnaires.

In turn, 25 students (11.36%) thought they had a high drop-out rate, as well as, they are not adapted to mobile devices (7.27%), and with less than 6% they expressed that they implied great autonomy with the inconvenience of its massive nature, the additional cost for obtaining the official certificate, can mean new business models for university institutions and the inconvenience that these online courses need Internet connection. We consider these results to be very important for understanding the nature of the MOOC phenomenon. It has undoubtedly been one of the most relevant innovations in the field of pedagogy in recent years.

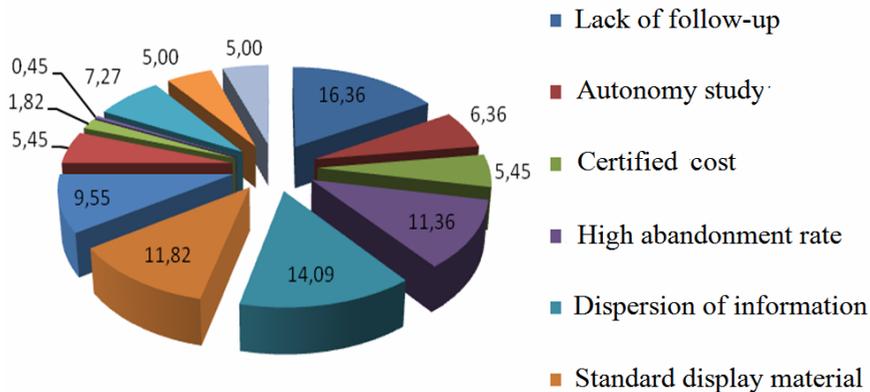


Figure 4. Percentages of student responses related to the weaknesses of the MOOC courses of the 2017/18 academic year. Own elaboration

6. Conclusion

Universities are the techno-cultural institutions for the expansion and dissemination of global knowledge, the empowerment of citizenship, educational innovation, the transfer of knowledge and energizing professional development, social cohesion and integration in the technological and economic fabric of the Knowledge Society for development and human progress (López-Meneses, 2017).

In this sense, this new training modality of knowledge expansion can help the transformation of classrooms, limited in time and reserved access to information on some occasions to a social elite, to transcend to new ubiquitous, connective learning scenarios, informal, and horizontal that can facilitate the digital inclusion of the most disadvantaged and the birth of interactive virtual communities of collective intelligence.

But, we must be aware that, after a first period of convulsion and impact in the formative world of Higher Education, it has evidenced a series of deficiencies as expressed by the student body and that is corroborated with other authors: the high dropout rate, the poor interactivity among its participants, the recognition of official training credits, the tendency to monetization, etc. (Aguaded, Vázquez-Cano y Sevillano, 2013; Daniel, Vázquez-Cano y Gisbert, 2015; León-Urrutia, Vázquez-Cano y López-Meneses, 2017).

At the same time, training, research and technological innovation are backbone axes for the improvement of the quality and competitiveness of a country, in addition to the sustainable development of citizenship. In this sense, the Universities are the techno-cultural institutions for the expansion and dissemination of global knowledge, the empowerment of citizenship, educational innovation, the transfer of knowledge and energizing professional development, social cohesion and integration in the technological fabric and economic of the Knowledge Society for development and human progress (López-Meneses, 2017; Ponce, Pagán-Maldonado, and Gómez-Galán, 2018; Gómez Galán, Martín Padilla, Bernal Bravo, and López-Meneses, 2019).

In the current technological, social and communicative network, Universities must adapt the training processes (as the vast majority are doing), taking into account, among other aspects, the characteristics and current needs of students, facilitating the incorporation of flexible scenarios and be open for training and learning that will help transform traditional communication models (characterized by the passivity of students) by others in which they can actively participate in the construction of knowledge and where they are aware of their own training process in acquisition of competences and capacities (Cabero, Ballesteros and López-Meneses, 2015).

We speak, in short, of a new drawing for the university institution, the University 2.0 (Cabero and Marín-Díaz, 2011; López-Meneses, Vázquez-Cano, & Román, 2015; López-Meneses, Vázquez-Cano, Gómez-Galán and Fernández-Márquez, 2019).

Regarding the lines of the future as indicated in another work (López-Meneses, Vázquez-Cano and Fernández-Márquez, 2016), it confirms that investigations of this type allow us to reflect and deepen the contents of the subjects and are interesting strategies Metacognitive methodologies for the sustainable competence development of the student.

In this line of research, currently, from the Eduinnovagogía® research group (HUM-971) U.R.L <http://bit.ly/1sGHwqO> we are studying its feasibility for the design and development of a MOOC on this theme for the expansion of global knowledge.

Ultimately, the edublog entitled a virtual look, prepared by a student corresponding to the 2017/18 academic year, is presented in Figure 5, which through a post in his edublog was requested as a final task to express the application 2.0.



Figure 5. Students of Social Education Degree. 2017/18 course
Source: <https://unamiradavirtualgema.blogspot.com/p/valoracion-aplicaciones-20.html>

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Counselling Services and Study Habits among Adolescents Student in Secondary Schools: A Pre-University Perspective

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Abstract: This study was carried out to examine the influence between counselling services and study habits among adolescents student in secondary schools in Ikot Ekpene area of Akwa Ibom State of Nigeria. Four research questions and hypotheses were formulated to guide the study. The design used was the descriptive survey method. A population of 3,000 adolescents were used out of which a sample size of 239 were randomly selected using simple random sampling technique to select respondents for the study. The researcher constructed instrument called “Counselling Services and Study Habit Questionnaire” (CSSHQ), was used to collect data for the study, the reliability coefficient was tested using Cronbach Alpha Correlation analysis, it found 0.76. Independent t-test was used for data analysis. The findings revealed that, group counselling, orientation services, one-on-one counselling and information services influenced study habits of adolescents in secondary schools in IKot Ekpene area of Akwa Ibom State. Conclusions drawn from the study led to the following recommendations among others, school administrator should ensure that counselling is allocated in the school time table, so as to help in improving adolescent students study habits..

Key Words: Pre-University Studies, Adolescents, Secondary Education, Counseling Services, Study Habits

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1. Introduction

Guidance and counselling is an educational programme which has a range of activities, programmes and services aimed at helping the students to understand themselves and the world around. Counselling services are encompassed by activities of relevant services and also processes of helping persons within and processes of helping persons within and outside the school, to achieve their full potentialities in academic, vocational, emotional, moral and social development (Meyers, 2011). Stone (2002) asserted that counselling service are those services given by a trained counselor or therapist to students in order to help them to address their various challenges which could be educational, vocational and personal or social in nature. These services are information service, orientation service, guidance service, educational services etc. The essence of these services is to assist students to understand themselves, situations and the environment. It further helps students to discover their potentials and learn how best to effectively utilize their assets as well as minimize their weakness in order to live a maximum productive life.

Counselling is a process which takes place in a one-on-one relationship between an individual faced by problems, which he/she cannot cope with alone and a professional worker whose training and experience qualifies him to help others to arrive at solutions to various types of personal difficulties (Ekpo, 2007). It is designed to facilitate self-understanding and self-direction. It is directed towards the enhancement of self-image. Students are set to understand themselves and to correct anomalies which produce the responses he does not wish to achieve (Akinade, 2012). Counselling is a relationship of trust and confidence between the counselor and the client (Ellis, 2003).

Group counselling involves an interaction with a counsellor by a number of two to eight persons (counselee) for the purpose of addressing the problems of the counselee through solution insight by the counsellor (Toyo, 2010). In light of this group counselling at the secondary school, likely enhance study habits of students in that, their study habit problems through group counselling solution is proffer.

It is the responsibility of the counsellor to preplan, design for group members so that they will become productive. The most important considerations of group counselling are those associated with group objectives, membership, rules, time, place and dynamic. Group counselling involves individuals who are having difficulties they wish to resolve; that are of a personal, educational, social or vocational nature (Corey and Corey, 2002). These groups, in the context of this study are primarily run in educational institutions. Other agencies perhaps, they deal with specific and non-pathological problems that members are prior to forming which do not

involve major personality changes (Effiong, 2015). For instance, for effective counselling services, the group may focus on how members achieve such goals as relating better to their families, becoming organized, or relaxing in the presence of the counsellor.

Orientation service involves a process, in which a client views, aspirations, goals are reposition for better life fulfillment by a counsellor, through awareness. This may likely influence adolescent study given the fact that knowledge gained from the orientation programme help to redirect one approach to academic. One-on-one counselling is a face-to-face process of counselling, that revolves between a counsellor and a client. One-on-one counselling assist students to be open-minded that is not to cover facts that may be geared towards their better study habits. Group counselling tends to become pertinent due to the nature tendency for people to gather and learn. It is observed that through groups, individuals accomplish goals and relate to others in innovative and productive ways (Mcclure, 2000). This implies that in groups counselling, there are innovative interactions among members which could awaken their study habits. That being the case if any member of the group were enduring poor study habit, this opportunity could enhance a change to effective study behaviours that can help better academic performance.

This assumes to be one-on-one relationship between an individual faced with problems such as person cannot solve. The client meets with a professional counsellor who helps him to arrive at the solution through interaction (Effiong, 2015). George in Ekpo (2007) consider it an interaction that occurs between two individuals called a counsellor and a client or counsellee which takes place in a professional setting, Initiated and maintained as a means of facilitating positive change in terms of behaviours of a client.

A face-to-face or person-to-person relationship in which a person (the client) seeks help of or seeks effectively communicate with other person (the counsellor) (Ipaye 2013; Nwachukwu, 2002; Denga, 2007). This counselling service creates opportunity for interpersonal interaction that would unravel the main problems of the counsellee to mediate the risk of conflict situation. Individual counselling services help to create opportunity for mutual respect, effective communication, genuine and complete acceptance of the client by the counsellors, which contribute to problem solving behaviour in school. Hence, the relationship created helps to facilitate growth, follow-up process and change of attitude regarding the disturbed behaviours.

Information service is a may be a pivotal for increasing of student study habit in that, counsellor will functionally obtain, accumulate, store, display and utilize and disseminate information about the student. It has been observed that most adolescence students tend to develop study habits towards their social activities. Consequently appear frustrated, troubled uncertain, and

maladjusted academically. They tend to be worried about how to cope with the activities of learning as they progress in their academics. Learning is central to knowledge creation and retention in all works of life.

It has been observed that most adolescence students tend to develop study habits towards their social activities. Consequently appear frustrated, troubled uncertain, and maladjusted academically. They tend to be worried about how to cope with the activities of learning as they progress in their academics. Learning is central to knowledge creation and retention in all works of life.

Nwachukwu (2011) observed that a greater majority of secondary school students have their study habit developed and improved through various counselling strategies. Gbore (2006) observed that study habit is the characteristics of behaviour that brings out one's individuality in terms of the physical, social, intellectual, moral and emotional behaviour. These are boosted by the students or individual's immediate environment, family and school in their vital interactions and subsequent development of self esteem.

Guidance and counselling is therefore apt to address students dominated problems. For instance, guidance counselling experts should be able to identify the various factors influencing the ability of adolescence students to cultivate effective and efficient study habits in school. The issue of study habits cut across the entire school segment, afflicting the good and poor students. It is important that it be given a very exhaustive consideration (Isaac, 2011).

The research work is therefore most timely when we consider the demands placed on this army of students by the new system of education. The situation is even more serious when it is observed that the high rate of school dropouts in our society is mostly victims of poor study habits and not those of mental retardation.

The researcher is poised to examine the influence counselling services on study habits among adolescence student in secondary schools in IkotEkpene Local Government Area.

2. Statement of the Problem

It is the view of every education stakeholder and student alike to expect better results in academics but this yearning tends not to materialize. Thus, frustrating set in. This frustration tends to stem from poor study habits and lack of counselling services. As a way out, students resort to some unwholesome means of helping themselves. These include among others involvement in examination malpractice, exemplified in some students copying into the examination rooms, sneaking in with textbooks against examination morns, exchanging answers worked on question papers and hunting around for pilot question before the commencement of the

examination. With this, academic performance becomes more as manifested in the senior secondary certification examination results.

Ekpo (2007) holds that human beings have problems which they cannot solve as such need counselling. The problems may be psychological, emotional, educational, vocational and personal. Social services rendered by guidance counselor are designed to make clients become happier in life because it is assumed that an individual who understand himself, his environment, personality, interests, general ability can be more effective and productive to himself and the society.

Thus counselling service such as group counselling, orientation service, one-on-one counselling and information service is keen to address students study habit at the school.

The researcher is poised to examine the state of affairs by considering the influence of counselling services vis-à-vis study habits among students in our school system. In specific terms this research work aimed at examining the influence of counselling, orientation, information services on study habit among adolescence students in schools in IkotEkpene Local Government Area, through empirical procedures.

3. Objectives and Significance of the Study

3.1. Objectives

The objectives of this study were to examine the influence of counselling services on study habit among secondary school students. Specifically, the study intends to;

1. Examine the influence of group counselling on study habits among adolescent students.
2. Determine the influence of orientation service on study habits among adolescent students.
3. Determine the influence of one-on-one counselling on study habits among adolescent students.
4. Determine the influence of information service on study habits among adolescent students.

3.2. Research Questions

The following research questions were raised to address the major issues of the study:

- i. What is the influence of group counselling on study habits among adolescent students?
- ii. To what extent does orientation service influence study habits among adolescent students?
- iii. What is the influence of one-on-one counselling on study habits among adolescent students?

- iv. To what extent does information service influence study habits among adolescent students?

3.3. Research Hypotheses

The following null hypotheses were formulated to guide the study.

1. There is no significant influence of group counselling on study habits among adolescent students.
2. There is no significant influence of orientation service on study habits among adolescent students.
3. There is no significant influence of one-on-one counselling on study habits among adolescent students.
4. There is no significant influence of information service on study habits among adolescent students.

3.4. Significance of the Study

Findings of this study may be useful to the students, guidance counselors, teachers, government agencies and school principals in the following ways;

It may encourage students to approach guidance counselors for proper help in the selection of subjects career choice and other academic challenges. The findings may also be significant to guidance counsellors as the study would expose some militating factors against effective study habit among the adolescent students.

Findings of the study may motivate the teachers to avail themselves of the use the findings to encourage the students to develop effective study habit in order to improve their academic performance.

Findings of this study may awaken the government consciousness on the need to employ more counselors to all the public schools in the state in order to provide the necessary counselling services to students.

School principals may be encouraged by the finding to ensure that enabling environment is provided for the counsellors' effective and efficient discharge of their responsibilities.

Finally, the findings would contribute to the existing information on the effect of poor study habits on the academic performance of students thereby serving as reference research materials for researchers who may wish to carryout research in the related field.

4. Methodology

4.1. Methods

A descriptive survey design was used in this study to find out the level of influence of counselling services on study habit among adolescent students in IkotEkpene Local Government Area. According to Udoh and Joseph

(2005), survey research design is effective where the entire population cannot be reached. Esene (2005) added that survey research involves the assessment of public opinions, beliefs, attitude, motivations and behaviours. It uses questionnaire and sampling methods, therefore, the research design was suitable since questionnaire is administered face to face to the respondents. The research uses a sample of 256 SS3 students. In selecting the students, a stratified random sampling technique was adopted. In this sampling technique the local government was divided into strata (urban and rural). The hat and draw respondent method was used in selecting the respondent to be used in each of the strata.

4.2. Instrumentation

The researcher developed instrument used for data collection was questionnaire titled “Counselling Services and Study Habit Questionnaire” (CSSHQ). The instrument was subjected to validation by some validates in the Department of Educational Foundations, Guidance and Counselling.

The purpose was to ensure that the items were properly arranged, ensure content coverage, use of language and suitability of items in terms of measurement. In addition, the observations and recommendations from the validators were incorporated.

Thus, the instrument was adjudged valid for data collection. The questionnaire had three sections (A, and B). Section A comprised of personal data of the respondents while section B comprised of items a derived from the sub-variables grouped into four clusters (1-4) namely: group counselling, orientation service, one-on-one counselling and information service.

The response options were. But in measurement scales of 1-4 respectively thus: Very High Influence - 4 points, High Influence -3 points, Moderate Influence - 2 points and Little Influence - 1 point.

The instrument was tried-out on 20 adolescent in public secondary school. The instruments were tested and retested, the data collected were subjected to the reliability coefficient using Cronbach Alpha Correlation analysis to ascertain the degree of reliability of the instrument, it was found to be 0.76.

5. Results

5.1. Research Question 1

What is the influence of group counselling on study habits among adolescent students?

S/N	Group Counselling	\bar{X}	SD	Remark	
1	Group counselling helps me to readjust positively for better study habit at school.	3.19	0.51	H	I
2	I know some of my weaknesses with the help of group counselling and improve on them, for high academic achievement.	3.17	0.74	H	I
3	After the group counselling, I often make realistic study decisions for better study habit	3.21	0.56	H	I
4	I am often aspired for high performance in my studying through group counselling.	3.14	0.76	H	I
5	I learn new techniques from peers in the course of group counselling.	3.24	0.65	H	I
Cluster Mean		3.19	0.64	H	I

Field Work: 2018, Note: VHI = Very High Influence; HI = High Influence; MI = Moderate Influence; LI = Little Influence.

Table 1. *Mean responses of the respondents on the influence of group counselling on study habits among adolescent students. n=239*

The result presented in Table 1 reveals that group counselling has a cluster mean of 3.19. This indicates that, group counselling has a high influence on study habits among adolescent students. All the items have their mean scores above the cut-off point of 2.00. The item on ‘I learn new techniques from peers in the course of group counselling’, have the highest mean score ($\bar{X} = 3.24$).

The remaining items have their means ranging between 3.14-3.21. The Table also shows that the standard deviation of the items fall within the range of 0.51-0.76, this indicates that the respondents were not divergent in their responses from the cluster mean.

5.2. Research Question 2

To what extent does orientation service influence study habits among adolescent students?

S/N	Group Counselling	\bar{X}	SD	Remark	
1	With orientation service I am acquainted with the manner examination is conducted and what is required in through study.	3.19	0.51	H	I
2	I get acquainted with the school environment, strategic study techniques for subjects such as mathematics, after orientation service	3.26	0.51	H	I
3	I perform better in English Language because of orientation service which assists my study habit at school.	3.21	0.72	H	I

4	After orientation service, I set new study goals for myself in order to enhance my performance.	3.40	0.66	H	I
5	Through orientation I am able to approach counsellors when I have difficulties in a particular subject.	3.39	0.58	H	I
Cluster Mean		3.29	0.60	H	I

Field Work: 2018. Note: VHI = Very High Influence; HI = High Influence; MI = Moderate Influence; LI = Little Influence.

Table 2. *Mean responses of the respondents on the influence of orientation service on study habits among adolescent students. n=239*

The result presented in Table 2 reveals that orientation service has a cluster mean of 3.29. This indicates that, orientation service has a high influence on study habits among adolescent students. All the items have their mean scores above the cut-off point of 2.00. The item on ‘After orientation service, I set new study goals for myself in order to enhance my performance’, have the highest mean score ($\bar{X} = 3.40$). The remaining items have their means ranging between 3.19-3.39. The Table also shows that the standard deviation of the items fall within the range of 0.51-0.72, this indicates that the respondents were convergent in their responses from the cluster mean.

5.3. Research Question 3

What is the influence of one-on-one counselling on study habits among adolescent students?

S/N	Group Counselling	\bar{X}	SD	Remark
1	I am always giving directives on how to choose meaningful career.	3.16	0.48	H I
2	I am guided on how to relate with peers in order not to be termed deviant.	3.46	0.50	H I
3	I am always guided by the counsellor on how to handle difficult subjects like mathematics at school.	3.25	0.71	H I
4	Solution insight is provided for my emotional instability which enhances my academics performance in one-on-one counselling.	3.10	0.51	H I
5	One-on-one counselling service assists me in fulfillment of my academic career.	3.45	0.68	H I
Cluster Mean		3.29	0.58	H I

Field Work: 2018. Note: VHI = Very High Influence; HI = High Influence; MI = Moderate Influence; LI = Little Influence.

Table 3. *Mean responses of the respondents on the influence of one-on-one counselling on study habits among adolescents students. n=239*

The result presented in Table 3 reveals that one-on-one counselling has a cluster mean of 3.29. This indicates that, one-on-one counselling has a high influence on study habits among adolescent students. All the items have their mean scores above the cut-off point of 2.00. The item on ‘I am guided on how to relate with peers in order not to be termed deviant’, have the highest mean score ($\bar{X} = 3.46$). The remaining items have their means ranging between 3.10-3.46. The Table also shows that the standard deviation of the items fall within the range of 0.48-0.71, this indicates that the respondents were convergent in their responses from the cluster mean.

5.4. Research Question 4

To what extent does information service influence study habits among adolescent students?

S/N	Group Counselling	\bar{X}	SD	Remark
1	Information service assists me to find solution to my academic challenges especially my study habit	3.10	0.44	H I
2	I develop worthwhile values due to information I received.	3.19	0.51	H I
3	Because of information service I understand my study habit weakness and possible solutions are provided to facilitate my performance	3.18	0.53	H I
4	Information service helps me to know my study potentials and improve on them	3.16	0.44	H I
5	Information service helps me to know my study potentials and improve on them	3.18	0.45	H I
Cluster Mean		3.16	0.47	H I

Field Work: 2018. Note: VHI = Very High Influence; HI = High Influence; MI = Moderate Influence; LI = Little Influence.

Table 4. Mean responses of the respondents on the influence of information service on study habits among adolescent students. n=239

The result presented in Table 4 reveals that information service has a cluster mean of 3.16. This indicates that, information service has a high influence on study habits among adolescent students. All the items have their mean scores above the cut-off point of 2.00. The item on ‘I develop worthwhile values due to information I received’, have the highest mean score ($\bar{X} = 3.19$).

The remaining items have their means ranging between 3.10-3.18. The Table also shows that the standard deviation of the items fall within the range of 0.44-0.53, this indicates that the respondents were convergent in their responses from the cluster mean.

5.5. Hypothesis 1

There is no significant influence of group counselling on study habits among adolescent students.

Variables	N	\bar{X}	S.D	df	t_{cal}	t_{cri}
Orientation Services	239	19.3	5.84			
				237	2.05	1.96
Study Habits	239	17.0	5.07			

Field Work: 2018. $P < .05$; $df = 237$; Crit. $t = 1.96$

Table 5. Summary of independent t-test analysis of group counselling influence on study habits among adolescent students.

The analysis in Table 5 produced a t-value of 2.30. When compared with the critical t-value of 1.96 at .05 confidence level with 237 degree of freedom, it was found to be greater. Based on this finding, the null hypothesis was rejected and the alternative hypothesis which states that, there is a significant influence of group counselling on study habits among adolescent students is retained.

5.6. Hypothesis 2

There is no significant influence of orientation service on study habits among adolescent students.

Variables	N	\bar{X}	S.D	df	t_{cal}	t_{cri}
Orientation Services	239	19.3	5.84			
				237	2.05	1.96
Study Habits	239	17.0	5.07			

Field Work: 2018. $P < .05$; $df = 237$; Crit. $t = 1.96$

Table 6. Summary of independent t-test analysis of orientation service influence on study habits among adolescent students.

The analysis in Table 6 produced a t-value of 2.05. When compared to the critical t-value of 1.96 at .05 confidence level with 237 degree of freedom, it was found to be greater. Based on this finding, the null hypothesis was rejected and the alternative hypothesis which states that, there is a significant influence of orientation service on study habits among adolescent students is retained.

5.7. Hypothesis 3

There is no significant influence of one-on-one counselling on study habits among adolescent students.

Variables	N	\bar{X}	S.D	df	t_{cal}	t_{cri}
One-on-One Couns.	239	19.8	6.96			
				237	3.18	1.96
Study Habits	239	17.2	5.49			

Field Work: 2018. $P < .05$; $df = 237$; Crit. $t = 1.96$

Table 7. Summary of independent t-test analysis of one-on-one counselling influence on study habits among adolescent students.

The analysis in Table 8 produced a t-value of 3.18. When compared to the critical t-value of 1.96 at .05 confidence level with 237 degree of freedom, it was found to be greater. Based on this finding, the null hypothesis was rejected and the alternative hypothesis which states that, there is a significant influence of one-on-one counselling on study habits among adolescent students is retained.

5.8. Hypothesis 4

There is no significant influence of information service on study habits among adolescent students.

Variables	N	\bar{X}	S.D	df	t_{cal}	t_{cri}
Information Services	239	18.7	5.79			
				237	4.33	1.96
Study Habits	239	15.8	2.23			

Field Work: 2018. $P < .05$; $df = 237$; Crit. $t = 1.96$

Table 8. Summary of independent t-test analysis of information service influence on study habits among adolescent students.

The analysis in Table 8 produced a t-value of 4.33. When compared with the critical t-value of 1.96 at .05 confidence level with 237 degree of freedom, it was found to be greater. Based on this finding, the null hypothesis was rejected and the alternative hypothesis which states that, there is a significant influence of information service on study habits among adolescent students is retained.

6. Discussion of findings

The findings of the study were discussed based on the purposes, research questions and hypotheses of the study.

6.1. Group Counselling and Study Habits

The result in research question one, reveals that group counselling has a high influence on study habits among adolescent students. This finding is in consonance with the finding of McClure (2000) who found that through groups, individuals accomplish goals and relate to others in innovative and productive ways. The researcher wish to suggest that counsellor should always imbibe in students the notions and benefits of group relation during counselling and after counselling. This will help study in their academics by discovering new ideas of study, so as to improve their academics.

The result of hypothesis one reveals that there is a significant influence of group counselling on study habits among adolescent students. This finding correlated with the finding of Denga (2001) who found that that group counselling assisted students to develop good skills, aptitudes, ideas and knowledge which could facilitate effective study habits.

6.2. Orientation Service and Study Habits

The result in research question two shows that, orientation service has a high influence on study habits among adolescent students. This finding is in line with the finding of Denga (2001) who found that orientation service enables the students to adjust to the school environment and develop good reading skills The researcher wish to suggest that school administrators should give prior attention to counsellor through providing of needed funds for the organization of orientation to students, on the need to change their study habit in order to improve their performance at school.

The analysis of hypothesis two showed that, there is a significant influence of orientation service on study habits among adolescent students. This finding is in line with the finding of Anwana (2001) who found that regular orientation organized in school by the professional counsellor will assist students to develop effective study habits.

6.3. One-on-one Service and Study Habits

The result in research question three showed that one-on-one counselling has a high influence on study habits among adolescent students. This finding is in line with the finding of Longman (2016) who found that one-on-one counselling which involve interpersonal relationship between a trained counsellor and a client fosters good academic performance. The researcher wish to suggest that, counsellors should adopt student-centred-

counselling approach, which will make students to approach counsellors without, hidden any fact in the course of their one-on-one counselling.

The analysis of hypothesis there showed that, there is a significant influence of one-on-one counselling on study habits among adolescent students. This finding correlated with the finding of Ekanem and Ench (2005) who found that students who take advantage of one-on-one counselling available in the school are likely to achieve good academic success than those who do not.

6.4. Information Service and Study Habits

The result in research question four showed that, information service has a high influence on study habits among adolescent students. This finding is in relation with the finding of Mduka (2008) who found that guidance and counselling information service has a great influence on students' indiscipline acts. The researcher wish to opine that school administrators in collaboration with school counsellor should improvise meaningful avenue in which students would be able to access information, in order to adjust in their study performance positively.

The analysis of hypothesis four showed that, there is a significant influence of information service on study habits among adolescent students. This finding is in line with the finding of Longman (2016) who found that counselling information is necessary at all times and the counsellors need to have up-to-date information about educational and training opportunities and in the area of personal and social concern.

7. Conclusion and recommendations

Based on the findings of the study, conclusion was drawn that counselling services had significant influence on study habits among adolescent students in public secondary schools in Ikot Ekpene Local Government Area of AkwaIbom State.

Based on the findings of this study, and the conclusions drawn, the following recommendations were made:

1. School administrator should ensure that counselling is allocated in the school time table, so as to help in improving adolescent students study habits.
2. The AkwaIbom State Government should assist school administrators by organizing seminars; workshops; among others to equip students on how to improve on their study habits.
3. he AkwaIbom State Government through the State Secondary Education Board should collaborate with the Parents Teachers Association (PTA) to provide a conducive environment in public secondary schools in IkotEkpene Local Government Area of

Akwalbom State. Such collaboration will help to ensure that adolescent students adjust positively in the school and home through meaningful contributions from such collaboration.

4. The Ministry of Education should deploy counsellors to every public schools in IkotEkpene Local Government Area of Akwalbom State. This would help to ensure that students are given adequate guidance which would assist them to adjust positively with their peers.
5. The school teachers should be provided with adequate knowledge through exposure and dedication to study of classroom situation to inculcate the right atmosphere for students to strive positively in the social setting.

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Innovative Educational Models for Nonhuman Animal Protection: A Case Study on a European School Scheme

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Abstract: The transformation of pedagogical processes in relation to the image offered about non-human animals in schools is currently urgent. Above all, it is essential to strengthen the ethical and moral dimension of these educational actions. As a case study, this article has as its main objective to explore distribution plans school milk schemes through humane education and examines the sustainability of such schemes using, as a methodological basis, the guiding questions posed by the True Price lesson plan created by the Institute for Humane Education. The European Union invests 100 million euros annually into school milk subsidies and this paper will examine whose interests are protected and promoted through school milk schemes and what are the environmental, health, and animal protection issues involved in the dairy industry. This theoretical work aims to demonstrate how humane education can be used to tackle topics that normally go undiscussed in schools and how to cultivate critical thinking and how humane education has the potential to represent a new model of environmental education that takes a much-needed interdisciplinary approach that combines animal and environmental protection and social justice. Throughout this process, teacher training is also crucial. Among the conclusions obtained, it is possible to determine, among other actions, how teacher training is decisive for achieving these goals. For this reason, this new and necessary pedagogical approach should also be integrated into the university.

Key-Words: Humane Education, Animal Protection, Animal Law, Welfare, Environment, Teacher Training.

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1. Introduction

Each year the European Commission invests 150 million euros into its School Milk Scheme, subsidising dairy products to schools (Maniaki-Griva, 2014) often accompanied by dairy advertising material and activities. Schools can be seen as an economic playground for the animal-industrial complex, investing into schemes that reproduce speciesist messages and habits. Some scholars have acknowledged how education can be used as a means to challenge and re-evaluate dominant speciesist and anthropocentric beliefs (Goodall & Bekoff, 2003, Jalongo 2004; Pedersen 2004; Gómez-Galán, 2008, 2012, 2019; Brügger, 2009; Caine 2009, 2015; Rice 2013; Pedersen & Gunnarson 2016; Weil, 2016; Saari 2018; Furlong, Silver & Furlong, 2018; González-Berruga & González-Berruga, 2018). However, practical implementation of humane education has been limited.

The property status of nonhuman animals and the problematic nature of welfare reforms, as it deceptively promotes the idea of humane use of nonhuman animals, focusing on small details of the exploitation process instead of questioning exploitation of sentient beings. Some legal scholars have aptly identified that the legal protection and possible rights of nonhuman animals depend on human attitudes towards them (Kalof, Fitzgerald, Lerner, & Temeles, 2004; Bisgould, 2014; Peters, 2016; Kopnina, Washington, Taylor, & Piccolo, 2018). We propose that humane education can be an important tool to help re-examine the human-nonhuman animal relationship and challenge destructive speciesist attitudes by critically evaluating the effects of our habits: in this case the consumption of dairy. To make a change in the treatment of nonhuman animals and our speciesist attitude towards them, it is not enough to rely on legal reforms regulating their exploitation, but instead we need to reform our values and moral landscape. In other words, a paradigm shift is needed. Educational institutions help maintain a speciesist society, but also offers a channel through which to challenge destructive worldviews.

If dominant beliefs and practices go largely unquestioned throughout our years in schooling, changing these well-established beliefs later in life can prove more challenging. Therefore, creating positive social change for animals requires critical approaches to education in practices through initiatives such as humane education, as well as the inclusion of education legislation into the discussion and practice of animal law. First, we examine the implications of the legal status of nonhuman animals and the inconsistent message of welfare regulations. We argue that education and particularly humane education has an important role to in the legal protection of nonhuman animals and any possibility of rights.

2. Context of the problem

2.1. Nonhuman animals as property

Why is it important to understand the legal status of nonhuman animals? As property, nonhuman animals are categorised according to their use, not according to their individual needs and interests. A rise in public concern over the treatment of nonhuman animals, welfare measures have been implemented to varying degrees and new marketing strategies promoting humane, happy, organic and free-range products stock supermarket aisles. Is there such a thing as humane farming or is it all a humane myth?

For thousands of years “a thick and impenetrable legal wall has separated all humans from all nonhuman animals,” as we have consigned ourselves the status of legal persons, while demeaning all other species the status of legal things (Wise 2001: 4). As property and objects, nonhuman animals are categorised according to their use, not according to their individual needs and interests. The same nonhuman animal can be considered worthy of protection depending on the category they are placed in. For example, a rabbit could be considered a pet, wildlife, a pest, used in research, or farmed for food or fur. The legal protection the rabbit receives will differ between each category, even though the innate needs of the rabbit do not change. Nonhuman animals are “socially constructed” and the categories we assign to them are “politically charged in that they serve to benefit some (humans, some animals) at the expense of others (other animals)” (DeMello 2012: 10).

Law can be seen as a manmade tool used by the powerful to protect their assets and interests and has served as a means to legitimise and normalise exploitation and oppression of different groups based on race, religion, gender, sexual orientation, as well as the oppression of slaves. The most comprehensive form of legitimised exploitation and oppression is that of nonhuman animals, whose value lies solely on their profitability and usefulness to humans. Although the legal system has granted corporations, universities, and natural elements such as a river in New Zealand the status and protection granted by legal personhood, nonhuman animals remain categorised as property, as mere objects to be owned and commodities to be traded. Their legal status allows us to not only intentionally ignore, but to abuse their most basic and fundamental interests.

Wise (2000: 4) recognises the correlation between law and morals, identifying how ancient jurists proclaimed that law had been created solely for human beings, resonating the belief of ancient philosophers that “all nonhuman animals had been designed and placed on earth just for human beings,” a belief that, according to Wise, lies at the root of what the law says we can do with them. Given the extent of our exploitation of nonhuman animals it is clear that they generally do not hold a high place in the sphere of

moral concern. But on what basis do we exclude nonhuman animals from the sphere of moral concern? Throughout history nonhuman animals have unfairly been judged according to criteria created by humans, criteria that ultimately aim to demonstrate human superiority, as we unduly judge nonhuman animals according to human traits. Cassuto (2007, pp. 60) justly acknowledges that human traits, such as “language, tool use, self-consciousness, or any other, can be found in animals ranging from dolphins to pigeons,” leaving us to question what is it exactly that grants humans superiority and domination over the rest of the animal kingdom? Even when the man-made criteria is not met by some members of the human species, such as infants or disabled people, human superiority prevails under the notion of belonging to the human species. *Speciesism*, a form of discrimination based on species membership, is comparable to racism and sexism, where a certain characteristic is used as a justification for oppression and different treatment. Dunayer differentiates between two types of speciesism: old-speciesism and new-speciesism. According to Dunayer (2001, pp. 34), old-speciesists advocate rights only for humans, whilst new-speciesists “advocate rights only for those non-humans who seem most like humans” while non-speciesists reject the human-biased criteria for rights and advocate rights for all sentient beings.

Francione (1995: 257) sees the legal system as highly adept in making it appear as though oppressed groups receive legal protection and welfare reforms direct our attention to tangential issues, such as cage sizes, interpreting the notion of cruelty differently from ordinary discourse. Legal welfarism calls for the regulation of our use of nonhuman animals, stating that nonhuman animals are to be treated *humanely* and spared from *unnecessary suffering*, but there is no agreement to what counts as *unnecessary suffering*. The humane treatment principle raises questions as to what counts as necessary suffering and according to whom? Bisgould (1996: 74) describes the the notion of unnecessary suffering as superficially impressive, as it disguises the many ways in which nonhuman animals suffer. A prime example of treating nonhuman animals as commodities, where the law legitimises their suffering, is the case of nonhuman animals used for farming purposes. According to Cassuto (2012: 12), as long as nonhuman animals are consumed for food, anticruelty laws are redundant since “we cannot seem to decide on a coherent set of values as to what counts as animal cruelty.” Standard industry practices cause immeasurable suffering for billions of nonhuman animals and *The European Convention for the Protection of Animals kept for Faming Purposes* outlines the *Five Freedoms* that aim to protect the basic needs of nonhuman animals, who are considered ‘sentient beings’ under the Lisbon Treaty ratified in 2009. For example, routine confinement, untreated diseases, mutilation (dehorning, beak trimming, tooth cutting, tail docking, and castration) without anaesthesia are largely accepted

and justified. Despite minimal standards concerning housing, feeding and veterinary care, nonhuman animals are deprived of their natural environment and deprived of expressing natural behaviour, as they are confined in barren cages, socially isolated and psychologically traumatized, and routinely express stereotypical behaviour reflecting their psychological torment. Cassuto (2012: 12) succinctly summarizes the fate of nonhuman animals bred for farming purposes, who he describes are “meat from the moment they are born as they are not just raised *for* food; they are raised *as* food. Their care and treatment acquires legal relevance only in as much as it impacts the marketability of their dismembered bodies.” The property status of nonhuman animals allows us to overlook them as individual sentient beings and turn them into a product even before they are born, where their whole existence lies solely on becoming or producing a product that humans can profit from.

If we are to take the interests of nonhuman animals seriously the only way to do so is to accord them the right not to be treated as property, abolishing their exploitation (Francione 2004: 108) and the only requisite for equal consideration ought to be sentience, the subjective awareness of someone perceiving and experiencing the world, (Francione & Charlton 2015: 97). Bisgould (2014) aptly highlights that nonhuman animals are not treated badly because they are classified as property, but they are classified as property so that we can treat them badly. Peters (2016: 22) similarly recognises that the legal protection of nonhuman animals and their potential rights ultimately depends on human attitudes and calls for an interdisciplinary approach to animal law where disciplines such as economics, biology (zoology), anthropology (human-animal studies), history and cultural studies are taken into account. School milk schemes are as an example of the pervasiveness of the animal industrial complex in schools and demonstrates the need for an interdisciplinary approach where the economic and institutional structures of education as well as daily practices and pedagogic materials are critically examined by approaches such as humane education.

2.2. Got milk? School milk schemes

Since 1977 the EU has promoted milk as an important source of vitamins and minerals, encouraging children to consume more milk through its School Milk Scheme, renamed as the School Milk, Fruits and Vegetables scheme in 2015 and coming into effect in the 2017/2018 school year, combining the previously separate schemes of milk and fruit and vegetables. The school milk scheme aims “to encourage the consumption among children of healthy dairy products” by subsidising the cost of different milk products to increase the consumption of dairy products in order to stabilise markets (European School Milk Scheme 2017). Out of 250 million euro budget for each school year, 100 million euros are allocated for school milk and 150 million euros allocated to fruits and vegetables. Children who regularly attend

a kindergarten, nursery school, primary or secondary school are eligible to receive products as part of the European School Milk Scheme (Frequently asked questions on the school milk scheme 2017).

Due to a decline in milk consumption, as well as fresh fruits and vegetables, the EU has prioritised their distribution in its school scheme (The Regulation -EU- 2016/791). The scheme includes a variety of dairy products in addition to milk and lactose-free milk, as they “have beneficial effects on children’s health” (The Regulation -EU- 2016/791). The Regulation (EU) 2016/791 also outlines the necessity of educational measures that support the short- and long-term goals of school scheme of “increasing the consumption of selected agricultural products and shaping healthier diets.” These accompanying educational measures should “represent a critical tool for reconnecting children with agriculture and the variety of Union agricultural products, particularly those produced in their region, with the help, for example, of nutrition experts and farmers” (The Regulation -EU- 2016/791). Schools are required to display dairy advertising and promotional material portraying drawings of happy farm animals and slogans on the health benefits of dairy. Each Member State customises the promotional material and activities.

School milk schemes are not unique to the European Union and similar schemes exist across the globe. To promote the consumption of milk the Food and Agriculture Organization of the United Nations (FAO) has organised the World School Milk Day since 2006 to raise awareness and promote school milk programs and the day is celebrated in school in over 25 countries (Food and Agriculture Organization of the United Nations, n.d.). The World School Milk Day Celebrations in past years have included regional and school competitions and activities focusing on milk, promotional material displayed in schools, students dressing up in cow costumes or cow masks, students donning milk moustaches. The dairy industry also takes a more hands on approach to promoting the consumption of dairy, for example by offering visits dairy farms where visitors are offered are carefully framed representation of dairy farms (Linné and Pedersen 2017). The normalisation of the exploitation of nonhuman animals is evident in children’s storybooks, such as the book *Farm Friends*, in which children are introduced to the different nonhuman animals that humans use for farming purposes. Children are told from a young age that “cows *help* us to make these foods: milk, butter and cheese.” The exploitation of the cow is framed as *cooperation* and the cow is depicted as *helping* humans produce products from milk, ignoring the means of getting the milk and the consequences for the cow. Representations such as this frame the use of nonhuman animals for farming purposes as *cooperation* instead of *exploitation*. This simplistic representation is reinforced through visits to small scale farms and petting zoos, where the conditions do not reflect the conditions in which nonhuman animals are raised

on factory farms, reinforcing the idyllic imagery represented in children's storybooks. This idyllic old-fashioned farm imagery is present in dairy advertising associated with school milk schemes.

3. A new humane education approach

3.1. Vision of non-human animals in schools: the true price of milk

Some researchers have identified how schools can play an important role in shaping how we view the world around us, including the way we view nonhuman animals as schools are a "part of a societal order in which objectification of animals to a large extent is socially accepted" (Pedersen 2004: 2). Animal exploitation and captivity is normalised in schools, from school lunches and milk schemes, food pyramids and nutritional guidelines, dissection, visits to zoos and aquariums where the captivity of nonhuman animals is normalised. Our daily lives are abundant with representations of nonhuman animals and since childhood, we are exposed to a variety of different representations through different media, but have little contact with real nonhuman animals. Our relationship thus becomes constructed through representations of nonhuman animals, representations constructed by humans for humans and which are often ideologically motivated.

Weil is critical of standard schooling systems for not teaching children about how their daily choices affect nonhuman animals, the environment and other people. The core of humane education is to unveil how "our daily lives are inextricably connected to institutionalized brutality, injustice, and environmental devastation" (Weil 2004: 13). Humane education can be incorporated into any grade level, but according to Weil, would ideally begin in kindergarten. Caine (2009: 10) has a corresponding view to the importance of beginning humane education at an early age and considers it "especially crucial for younger students to learn about our interconnectivity with nature, since opinions, beliefs and character are formed at a very young age." According to Caine (2009: 10), younger children are more flexible in their habits, attitudes and behaviours and therefore make a more promising audience for humane education, although considers it possible for anyone to learn to live in a humane way at any age. Gómez-Galán (2005, 2010 & 2019) defend training is a vital aspect of the practical implementation of humane education, focused primarily on the principles in schools, the age-appropriate teaching and the obstacles and limitations of humane education itself.

3.2. The need for animal protection education.

In the context presented, the integration of animal protection education into pedagogical processes is absolutely essential. We are talking about an education in environmental values and our planet holds a large number of sentient beings (with the ability to feel pain, fear, anxiety, etc.) which are also

earthlings just as we are, children of our planet. The ethical dimension of the problem is immense (Gómez-Galán, 2005 & 2008).

The way it's exposed, we're not just talking about the animals that live in the Earth's ecosystems, in complete freedom, and receive the impact of our actions on the environment. We also refer to those which are at our service and help us to feed ourselves, provide us clothing, entertainment, etc. Overall, the damage inflicted on these creatures is absolutely intolerable. It is so dreadful to witness the situation in which, every day, billions of sentient beings are crammed into industrial farms, experimenting centres and laboratories, participating in public performances, and some others, that ethical essence of what we understand as humanity, of what we are as a species, is clearly called into question.

These creatures, slaves in the hands of a super-predator, are subjected to situations and acts with such a great suffering that any description with words would be absolutely impossible. Such a lack of compassion or sensitivity is difficult to understand. Especially because for this purpose, despite the fact that some people claim that all these actions are essential to maintain our standard of living, in all its dimensions (which would also be questionable), there are now alternatives. But, as usual, power and economic interests prevail over the ethical and moral values (Gómez-Galán, 2005 & 2019).

This situation has been systematically analyzed by authors like Regan (1993), Singer (1995), Mosterín (1995), Bekoff and Goodall (2003), Gruen (2011) and Tester (2015). Clearly this is a major problem whose main solution lies, as in many other issues, in education. The main objective would be to create, mainly in children and young people, empathy for other animals, and provide them with a dignified life and the right not to be abused as sentient beings that are capable of suffering. Our circle of compassion must also cover the creatures who share with us their existence on our planet. As demonstrated in due course (Gómez-Galán, 2005 & 2008) this should be one of the most important goals in the context of the ethical and moral values of a new model of education, which merges the principles of its prescriptive curriculum with the defence of non-human animals and the environment. To mistreat these beings, inhabitants and brothers like us in the biosphere, denigrates everyone as a human being.

3.3. The basis for real progress: teacher training

Naturally, one of the challenges of this new educational model must undoubtedly be the training of teachers. To effectively achieve any of the major goals that define the model, adapted to the urgent problems we face, it is crucial to prepare teachers for this, as they must be the principal agents of change. Without the pedagogical training of teachers who should carry out this work everything would be in vain (Gómez-Galán, 2005).

Any education process lies on practice, that is, the development of action in operating contexts. As White (2005) demonstrated more than a decade ago, focusing on the principles of environmental education (EA) -the most traditional on an international scale and at all levels of education-, any theoretical base must be a guide for the attainment of objectives, which they develop and achieve with practical action. The key question is: are teachers willing to develop learning processes based on new theoretical models that include, merged, environmental and animal protection issues? All research leads to an affirmative answer.

Starting from a thorough understanding of the situation in which the group of teaching professionals concerned with these important issues is found it is possible to determine what are their interests, motivations, concerns for problems, scientific and didactic training, trust or distrust of institutions, the way that they are facing environmental problems, etc. Particularly in Europe we conducted a complex study (Gómez-Galán, 2010) which allowed us determining, and we specify to the maximum in this work, that teachers are very interested in these issues and are aware of the damage we are doing to the biosphere. They are highly motivated, as well as concerned, to address these serious problems. It is also interesting to contemplate our relationship with nature in an ethical dimension, and consider as necessary the existence of values that allow a suitable behaviour with the environment and other living beings that inhabit it (responsibility, respect and solidarity).

However there are different barriers to these intentions. One of the main ones is that training is clearly insufficient, especially from a scientific perspective -in our study, for example, we found out that a significant percentage of teachers surveyed had uncertainties about the theory of evolution of Darwin- (Gómez-Galán, 2010). They are also highly influenced by the media and participate in various topics or misconceptions. No less important it was to see how the intense teaching and management work that currently takes place at schools prevents them from having time to prepare themselves, develop creativity and implement what they consider essential to do. It's just a wish list.

Internationally, the situation is very similar, as similar studies have shown: Pooley and O'Connor (2000), Khalid (2003), Christenson (2004), McKenzie (2005), Chrobak and other (2006), Daskolia, Dimos and Kampylis (2012), Blanchet-Cohen and Reilly (2013), Liu, Roehrig, Bhattacharya, & Varma (2015), Christie, Miller, Cooke, & White (2015), or Aleixo, Leal & Azeiteiro (2018).

Therefore, this new proposal model should be integrated into a process of transformation of both one's education and education systems, again in the context of a new society. It would contribute to the necessary restructuring of what we understand by education, a process that would be precisely fed back

through innovative teaching and learning models in which the formation of future professionals of education is essential.

4. Questions to face a transformation

The Institute for Humane Education (IHE) offers a variety of free lesson plans covering a range of topics that can be included into existing lessons or taught as a lesson on its own. In the case study that we are developing in a specific way and as an example, we look at how school milk schemes and the use of dairy products (and ultimately eating nonhuman animals) can be explored using the IHE lesson plan ‘True price.’ The lesson is designed for students from the age of 11-12 up and the aim is “to explore the positive and negative impacts of our products choices on themselves, other people, animals, and the earth” (Institute for Humane Education, 2013). It is important to note that the lessons can be used for a variety of products, including clothing items (e.g. leather shoes), cleaning products, cosmetics, plastic (e.g. a plastic bottle), ‘food products’ (e.g. hamburgers, bananas, eggs) or different ingredients in recipes. The lesson raises the following questions:

- Is the item a want or a need?
- What are the effects of this product on people, animals, and the environment?
- What systems support, promote, and perpetuate this item?
- What would be an alternative, or a change to a system, that would do more good and less harm?

The questions raised in the lesson plan are important to unwrap and critically assess the dominant narratives we are exposed to and question who has constructed these narrative and whose narratives are missing? The suffering and death of nonhuman animals that we eat is often absent and it is *the absent referent* that separates the meat eater from the nonhuman animal and the nonhuman animal from the end product. The absent referent allows us to separate the meat that we eat from the idea that she or he was once a living being (Adams 1991) and the notion of the absent referent can be applied to dairy, as the victims of these practices are often hidden, making it even more pressing to critically evaluate dairy.

4.1. Is milk a want or a need?

Whether milk is a want or a need will have various, often conflicting answers. Different products made from milk, including ice cream, cheese and yoghurt could be argued to taste good making them something we want, but what are the arguments that we need milk products? According to the European Dairy Association (EDA) (2018) claim that “dairy foods are natural sources of valuable nutrients for children” and that dairy products “have an important place in children’s diet.” According to the EDA (2018), milk and

dairy products are naturally nutrient-rich with high quality proteins, vitamins and minerals, including calcium, phosphorus iodine, B12 and B2 vitamins. Dairy intake recommendations vary according to country specific guidelines, but on average 3-4 servings or 500-600ml of dairy per day is recommended. The EDA (2018) promotes the consumption of milk in various forms, including flavoured drinks and yoghurts in order to “help increase milk consumption” identifying that children’s milk consumption is declining. The EDA (2018) suggests milk is essential for healthy bones, muscles, dental health and promoting normal growth in children. We often hear claims that milk is essential for healthy bones, as it contains a high level of calcium. Dr. Barnard and the Physicians Committee for Responsible Medicine have called for the removal of milk from school lunches. According to Dr. Barnard (2016), there is abundant research demonstrating that milk does not improve bone health and is the biggest source of saturated fat in diets. In fact, some studies have shown that children who consumed larger quantities of milk have more bone fractures than children who consume less milk. Instead of improving bone health, some research demonstrates that the consumption of milk and milk products creates many health risks. Instead of the natural food, milk is promoted to be it “contains sugar in the form of lactose, animal growth factors, and occasional drugs and contaminants” (Barnard 2012). As cow’s milk is extremely high in estrogen and other growth promoters it is suspected to contribute to various health problem, such as premature puberty in girls (Stoll 1998; Apter & Vihko 2009), breast cancer (Outwater & Barnard 1997; Farlow et. al. 2009), heavy menstrual bleeding that can lead to anaemia, ovarian cancer (Cramer et. al. 2000, Larsson et. al. 2004), acne (Melnik 2012; Silverberg 2012), and has also been linked to weight gain, increase the risk of asthma, Parkinson’s disease, high blood pressure and other medical conditions such as excema (Klaper, 2017). As we can see, there are many studies that have been carried out on cow's milk as food, and there are not few researchs, very relevant, that are presented against.

Milk is often advertised as a perfect natural food, but natural for whom? What is cow’s milk and who is it for? Would we drink our pet dog’s milk or how about the milk of the woman living next door? As Dr. Klaper (2017) aptly summarises cow’s milk is the “the lactation secretion of a large bovine mammal that just had a baby” and asks us to look in the mirror for the answer whether we should be drinking cow’s milk. Dr. Barnard (2016) echoes the idea that cow’s milk is the perfect food for growing baby cows. To understand why we have become accustomed to consuming milk in all its manufactured forms students could trace the evolution of the dairy industry and how is it that humans came to drink the lactation secretion of another species and why find drinking the lactation secretion of our own species as unnatural after we are no longer babies?

4.2. What are the effects of milk on people, animals, and the environment?

Children are often exposed to idyllic images of farms, evident in children's storybooks and advertisements for animal products, where we often see happy cartoon depictions of cows, pigs and chickens advertising their own flesh to consumers. To further normalise the consumption of animal products we distance ourselves from nonhuman animals by describing their behaviour by using different words, for example "we *eat*, but other animals *feed*. A woman is *pregnant* or *nurses* her babies; a nonhuman mammal *gestates* or *lactates*" (Dunayer 2001: 2). By describing the behaviour of nonhuman animals in a different way to our own, we can be seen to distance ourselves from other animal species and make their behaviour seem unlike ours. By differentiating ourselves from all other species, we highlight their presumed *otherness* and thus make it easier to legitimise their use. We can also be seen to distance ourselves from exploitative practices by erasing the victims and targets of our habits, as we eat *pork* not *pig*, a *calf* becomes *veal*. By categorising nonhuman animals according to their use we create a false categories that normalise and justify the humane use of other animals. For example, the label *farm animals* creates a false category of nonhuman animals where the child grows up to view the incarceration of nonhuman animals in zoos as normal and legitimise our use of nonhuman animals for food (Dunayer 2001: 8)

The educational material accompanying school milk schemes as well as dairy advertising give a simplified view of milk production and frame "dairy as something with an animal origin, but still something that is there for human use" (Linné and Pedersen, 2017: 124). The information often excluded standard practices such as the forced artificial insemination of cows, forced removal of their young, diseases such as mastitis and lameness, the realities of factory farming conditions and standardised practices that legitimise immeasurable suffering on cows, including tethering by the neck. Educational information also excludes the slaughter of calves and the slaughter of dairy cows for meat and the life cycle of cows in dairy production. The discovery of these issues would bring into question the normalisation of eating nonhuman animals and could lead to follow up questions and research on other nonhuman animals exploited for food, critically assessing these practices using the questions from the lesson plans used here.

The environmental effects of dairy production increase according to the intensity of production and in the EU, the majority of dairy production comes from intensive factory farming. "Associated with the intensive dairy systems are high stocking rates, high use of chemical fertilizers and pesticides and mechanized methods," resulting in "problems of direct source pollution, diffuse pollution and pressure on marginal habitats and landscape features" (Centre for European Agricultural Studies, 2000: 6). According to the

‘Environmental Impact of Dairy Production in the EU’ report environmental effects include biodiversity, landscape and habitat loss, loss of soil integrity due to manure, increased fertilizer use, feed additives, growth hormones and medicine. In addition, water and air pollution are wide scale problems. Groundwater is polluted with nitrates and pesticides and surface water eutrophicated (Centre for European Agricultural Studies, 2000). When researching the impacts of dairy production the impacts of animal agriculture in all of its forms come into question and students may be guided to evaluate other factory farming practices and question the need for any of these practices using the questions presented in the lesson ‘True Price.’ According to the World Wildlife Fund (WWF) “over two-thirds of the world’s agricultural land is used for maintaining livestock” (WWF 2018). Issues raised by WWF include the excessive water use of growing feed for cows, the water used to manage manure and fertilizer and the pollution of waterways. WWF also highlights climate change, as greenhouse gases (methane, nitrous oxide and carbon dioxide) from dairy production have a substantial effect on air pollution. Waste management is also associated with air pollution and can severely affect the air quality. According to WWF animal agriculture is one of the main contributors of soil erosion, another significant problem associated with dairy production.

The effects of dairy products on people will have varying answers. In addition to researching and critically assessing the health claims about dairy, students could research the effects of the additives in all of the different milk products, the effects on people living near dairy farms and the effects of water and air pollution, the poor conditions and psychological harm slaughterhouse workers suffer (Dillard 2008).

4.3. What systems support, promote, and perpetuate milk?

According to a report by the Directorate General Health and Food Safety (2017) there are an estimated 23.5 million dairy cows in the European Union. The European Union counts for 24% of global cow’s milk production (International Dairy Federation 2017). Because of the power of stakeholders in the animal agribusiness milk and dairy are heavily lobbied and subsidised. The dairy industry is embedded in different systems: the wider problem of animal agribusiness, transportation, law and politics, lobbying networks, economics, and the connection between governmental nutritional guidelines and the industry.

4.4. What would be an alternative, or a change to a system, that would do more good and less harm?

There are a variety of plant-based options to dairy, including oat, soya, rice and almond milks. According to Dr Barnard, if children rely on milk to get their calcium they will miss iron, fibre and beta-carotene found in plant-

based sources of calcium. There are numerous plant-based sources of calcium, including broccoli, kale, beans, tofu breads, cereals and plant-based calcium-fortified beverages (Barnard 2012). Given the extent of the environmental effects of animal agriculture (including dairy production), students could also critically assess the plausibility of a sustainable dairy industry campaigned by WWF. Another topic to consider is how farmers in the dairy industry could be helped to move away from dairy to use their land to either grow something else.

Conclusions

The only solution to all social and environmental and protection animal problems we face today is a real sustainable, supportive, ecological development (in the true, scientific sense of the term), allowing for a complete transformation of our morals and our ethics, where nature and other living beings have their place, definitely banishing radical anthropocentrism of our world view and life. And this will be possible primarily through education: raising awareness thereon for a very near future. Of course, one of the main actions to carry out this change is a new model of education a clear objective: educational and informational character. Given the current situation, it is more necessary than ever to act on such complex and serious problems.

We advocate a new model, interdisciplinary and multidimensional, of environmental and humane education with a global and integrated approach taking as its starting point the common values shared by all human beings. This will trigger criticism of what the phenomenon of globalization is and what, in essence, is our civilization like today. These problems can not be separated from social and vice versa. They form a whole. Progress will only come through dialogue in all possible dimensions: social, ethical, moral, cultural, scientific, technological, economic, religious, etc. Based on those common elements (and all human beings have the same basic needs) it will be possible to build a global new model application in all educational systems in the world (Gómez-Galán, 2008).

At present, multiple pedagogical and didactic proposals coexist, all based on the various existing environmental ethics (anthropocentric, zoocentric, biocentric and ecocentric). That is why today it is practically unfeasible to achieve common goals if we do not unleash a change. The key is to get the most positive and efficient of all of them and, in a dialogue process, conduct a construct that allows us reflecting on the major problems of the world in which we live, our main needs, which are the most appropriate strategies to improve it, and considering that we are one with nature (not different realities, what happens to it will happen to us), including, without further delay, the group of creatures like us, children of the Earth, within our ethical sphere. Thus, in the fight against poverty and social inequality, while

fighting against poverty and social inequality we'll increase human welfare and we respect the environment, in capital letters, with all that it entails, as we have mentioned (Gómez-Galán, 2010).

To contemplate a unified educational perspective is the very basis of the social development of humanity. We urgently need to change the current educational schema. Critical thinking must be based on knowledge. Teachers trained to do so, with a holistic and not just technical training, teachers who give pre-eminence to educational processes dominated by the most transcendent values will be essential for this purpose. This new model, as an essential part of what we must understand as education, may be one of the main engines that power this change, this transformation. No doubt, it is dealing with one of the most pressing challenges facing humanity today and even brings into play not only our development but even our survival.

Focusing on the specific problem of our study, given that educational institutions are embedded in the economic and political arena of animal exploitation, a systemic change is needed for this systemic problem. Pedagogical initiatives on their own are not enough as long as school are part of the political agenda promoting animal use. This is why the field of animal law should take a greater interest in education and work together with educators, physicians and others who are working to challenge the current state of schools and curriculums. In this case, humane education offers intersectional approach to tackle the various interconnected problems of animal agriculture and re-examine and aim to shift anthropocentric values.

Protection and welfare education can be argued to be insufficient in creating long-term positive change, as it promotes the idea that animals are indeed protected through welfare legislation while hiding the suffering of animals on industrial farms, and fails to question anthropocentric values that legitimize the exploitation of animals. While school milk schemes aim to increase demand and secure the future of the dairy industry, critical approaches that question the use of animals are needed. School milk schemes reduce children into capital investments for the dairy industry – as future consumers that will sustain the industry in the future and bring profit.

Exploring the influence of corporations and governments in nutritional guidelines and subsidies through humane education ultimately involves re-evaluating the relationship we have with nonhuman animals and our place in the world. Children are not immune or isolated and the products we teach children to consume are not absent from wide scale suffering and environmental destruction. Dairy is laden with controversy and whether we are doing a disservice to children by cultivating the habit of dairy consumption (and meat eating) is something that needs to be urgently addressed. The True Price lesson plan from the Institute for Humane Education is an example of how controversial issues can be tackled within the

classroom and how critical thinking can be cultivated, as students are encouraged to explore and question the narratives they are exposed to.

Creating positive change for animals, the environment and our health requires critical approaches to education through initiatives such as humane education, and including education legislation into the discussion and practice of animal law.

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