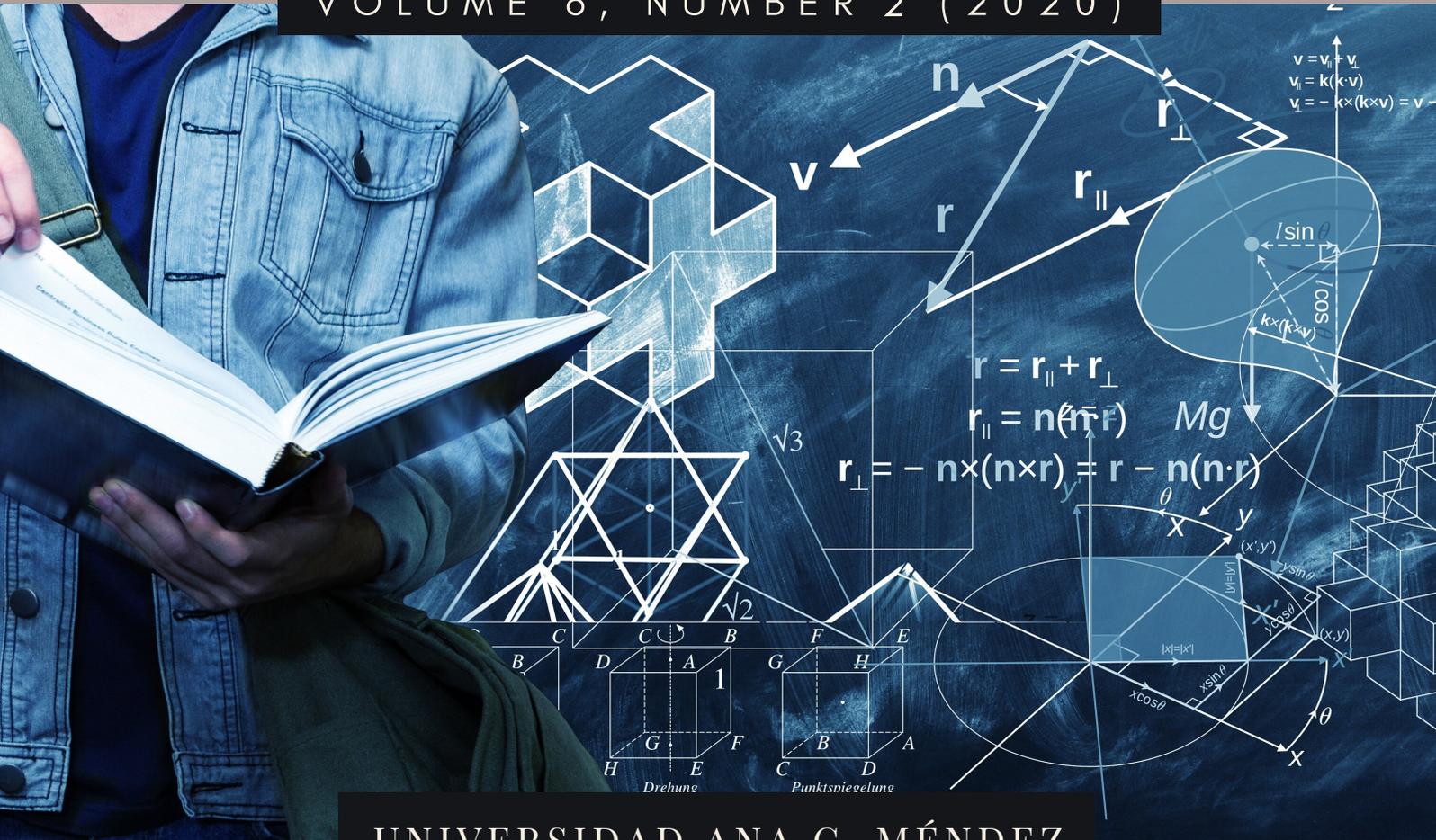


ISSN 2373-5929

INTERNATIONAL JOURNAL OF EDUCATIONAL EXCELLENCE

VOLUME 6, NUMBER 2 (2020)



UNIVERSIDAD ANA G. MÉNDEZ

International Journal of Educational Excellence

ISSN 2373-5929

*Volume 6
Number 2*

2020

Michael Agyemang Adarkwah, & Yu Zeyuan

The Paradoxical Relationship between Principals' Transformational Leadership Styles and Teachers' Motivation

Jorge Carvajal Espinoza, & John Poggio

Studying the Equivalence of Two Language Versions of a Large Scale Assessment: A Comparison of Test Takers in United States and Puerto Rico

Omar A. Ponce, Nellie Pagán-Maldonado, & José Gómez Galán

Philosophy of Educational Research: New Epistemological, Methodological and Historical Approach

Abisola Oladeni Sakirudeen, & Taiwo Akinloye

School Variables and Inclination towards Dropout of Secondary School Students: A Case Study

Noelia Gutiérrez Martín, & Eva Ordóñez Olmedo

Risks of Social Networks for Minors: An Exploratory, Descriptive and Mixed-Methodology Study

Universidad Ana G. Méndez (UAGM), Recinto de Cupey
Escuela de Educación, PO Box 21150 San Juan, PR 00928-1150
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 whose main objective is the dissemination of studies that provide answers to the main educational scientific and social problems present in higher education, to achieve excellent 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 leads to 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 All papers submitted for publication must be unpublished and originals, and should not be under any evaluation procedure for publication in other journals.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 with 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 to keep all the features of traditional print journals. Articles will appear in PDF format, conveniently typeset, and numbered as classical style journals. Therefore, we intend to facilitate their distribution and their scientific citation under 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 an e-book. This publication takes advantage of newly implemented technologies to facilitate publishing and distribution, at the same time 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.

PEER REVIEW PROCESS

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 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 are 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 the 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 the 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 the general society as well. However, because of its 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.

COPYRIGHT



The articles published in the International Journal of Educational Excellence are licensed under Creative Commons. Free downloading and sharing of articles published in the Journal are allowed, but they cannot be modified in any way; neither can be commercially used. Authorization for the reproduction of tables, figures, graphs, or less

than 150 words of text is not necessary; however, the correct citation of sources of information has to be credited as required by the law. No permission or authorization is required for the use of the journal in academic activities or for its reproduction for educational or scientific purposes. In all other cases, the appropriate permission and/or authorization has to be requested from the Editorial Board following international legislation on intellectual property protection.

Author Rights: authors sign an exclusive license agreement, where authors have copyright but license rights in their article to the publisher. Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing Agreement'. The ethics Journal Publishing Agreement for the International Journal of Educational Excellence (IJEE) is based in part on the SPARC Guide to Author Rights/SPARC Author Addendum. (<http://www.sparc.arl.org/resources/authors/addendum>).

SPARC[®]



Acceptance of the agreement will ensure the widest possible dissemination of information. For the International Journal of Educational Excellence (IJEE) to publish and disseminate research articles, we need publishing rights. This is determined by the publishing agreement between the author and IJEE. This agreement deals with the transfer or license of the copyright to IJEE and authors retain rights to use and share their own published articles. Authors have the right to: (i) the rights to reproduce, to distribute, to publicly perform, and to publicly display the article in any medium for non-commercial purposes; (ii) the right to prepare derivative works from the article; and (iii) the right to authorize others to make any non-commercial use of the article so long as author receives credit as author and the journal in which the article has been published is cited as the source of first publication of the article. For example, the Author may make and distribute copies in the course of teaching and research and may post the article on personal or institutional websites and in other open-access digital repositories. IJEE supports the need for authors to share, disseminate, and maximize the impact of their research and these rights.

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 the material is taken from other sources (including their published writing) the source is 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 the 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 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 the 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.

EDITORIAL OFFICE SUBMISSIONS INFORMATION

Universidad Ana G. Mendez (UAGM). Recinto de Cupey. Escuela de Educación, PO Box 21150 San Juan, PR 00928-1150. E-mail: jogomez@suagm.edu

DESIGN, COMPOSITION AND LAYOUT

Prof. Dr. José Gómez Galán

DESIGN AND WEB MAINTENANCE

Sr. Vidal Torres Miranda
Prof. Dr. José Gómez Galán

The management and the editorial scientific board members of the International Journal of Educational Excellence (IJEE) are not responsible for the opinions, analysis, or results presented by the authors in their articles.

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 to achieve 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 comply with the parameters of current scientific and technological research. The review criteria and selection process will mainly assess 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). Before 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 on the web site will be accepted.

Submission of the 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 the 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 the English language along with Spanish and Portuguese translated versions. The summary should also include five to seven keywords 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 identified through the use of spaces.

Standards of the 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:

Text citations:

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

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.

References List:

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. 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 the main body of the 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 after 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.

References should follow the APA guidelines contained in the Publication Manual of the American Psychological Association (6th edition). In general, the basic forms of citation are as follows:

Article in Journal:

Author, A. A., Author, B. B., & Author, C. C. (Year). Title of article. *Title of Periodical*, volume number (issue number), pages.

Books - Author:

Author, A. A., Author, B. B., & Author, C. C. (Year of publication). *Title of work*. Location: Publisher.

Edited Book, No Author:

Editor, A. A., Editor, B. B., & Editor, C. C. (Eds.). (Year of publication). *Title of work*. Location: Publisher.

Article or Chapter in an Edited Book:

Author, A. A., & Author, B. B. (Year of publication). Title of chapter. In A. A. Editor & B. B. Editor (Eds.), *Title of book* (pp. pages of chapter). Location: Publisher

Dissertation, Published:

Author, A. A. (Year). *Title of dissertation* (Doctoral dissertation). Retrieved from Name of database. (Accession or Order Number)

Dissertation, Unpublished:

Author, A. A. (Year). *Title of dissertation* (Unpublished doctoral dissertation). Name of Institution, Location.

Conference Proceedings:

Editor, A. A., & Editor, B. B. (Year of publication). Proceedings from Acronym Conference: *Title of Conference*. Location: Publisher.

INTERNATIONAL JOURNAL OF EDUCATIONAL EXCELLENCE
Volume 6. Number 2 (2020)

Article From an Online Periodical:

Author, A. A., & Author, B. B. (Date of publication). Title of article. *Title of Online Periodical*, volume number (issue number if available). Retrieved from <http://Web address>

Article From an Online Periodical with DOI Assigned:

Author, A. A., & Author, B. B. (Date of publication). Title of article. *Title of Journal*, volume number, page range. doi:0000000/000000000000 or <http://dx.doi.org/10.0000/0000>

Chapter/Section of a Web Document or Online Book Chapter:

Author, A. A., & Author, B. B. (Date of publication). Title of article. In *Title of book or larger document* (chapter or section number). Retrieved from <http:// Web address>

Nonperiodical Web Document, Web Page, or Report:

Author, A. A., & Author, B. B. (Date of publication). *Title of document*. Retrieved from <http://Web address>

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 should contain words directly related to the content of the 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 (Ph.D.) may not be used. 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.

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

INTERNATIONAL JOURNAL OF EDUCATIONAL EXCELLENCE
Volume 6, Number 2 (2020)

Keywords: will be entered below the summary separated by a double space. We recommend providing five to seven keywords 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), under the recommendations given in this Guide for Authors.

Scientific and professional record of the 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 recently published papers.

Notwithstanding the guidelines outlined above, it is strongly recommended for preparing manuscripts, to follow the APA style compiled in the *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 the 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 is 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 retain 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. Also, 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.

International Journal of Educational Excellence

Volume 6, Number 2 (2020)

ISSN 2373-5929

EDITORIAL BOARD

Editor-in-Chief

José Gómez Galán, PhD, PhD.

Associate Editors

Marcela Cazzoli-Goeta, PhD. Durham University, United Kingdom

Eloy López Meneses, PhD. Universidad Pablo de Olavide, Spain

Eduardo Negueruela Azarola, PhD. University of Miami, United States

Maribel Santos Miranda Pinto, PhD. Instituto Politécnico de Viseu, Portugal

Fabrizio M. Sirignano, PhD. Università degli Studi Suor Orsola Benincasa, Italy

Laura San Martín, PhD. Harvard University, United States

International Editorial Advisory Board

Jean-François Cerisier, Ph.D. Université de Poitiers, France

Carmen Rosa Coloma Manrique, PhD. Pontificia Universidad Católica del Perú, Perú

Enricomaria Corbi, PhD. Università degli Studi Suor Orsola Benincasa, Italy

José Francisco Durán Medina, PhD. Universidad de Castilla-La Mancha, Spain

Susana Silvia Fernández, PhD. Aarhus Universitet, Danmark

Cristina Lázaro Pérez, PhD. Universidad de Murcia, Spain

Edileuza de F. Miranda de Mendonça, PhD. Conselho de Educação de Goiânia, Brazil

Maria Luisa Iavarone, PhD. Università degli Studi Parthenope, Italy

Javier Loredó Enríquez, PhD. Universidad Iberoamericana de México, México

Jaime Sánchez Ilabaca, PhD. Universidad de Chile, Chile

Francesca Marone, PhD. Università degli Studi di Napoli Federico II, Italy

Dayse de Marie Oliveira, PhD. Centro Edelstein de Pesquisas Sociais, Brazil

António José Osório, PhD. Universidade do Minho, Portugal

Julio Real García, PhD. Universidad Autónoma de Madrid, Spain

Carlo Tassara, PhD. Università degli Studi "La Sapienza" di Roma, Italy

Esteban Vázquez Cano, PhD. UNED, Spain

INSTITUTIONAL COMMITTEE

Ángel A. Toledo López, PhD., Universidad Ana G. Méndez, Puerto Rico
José E. Berríos Lugo, PhD. Universidad Ana G. Méndez, Puerto Rico
Zaida Vega Lugo, Ed.D. Universidad Ana G. Méndez, Puerto Rico
José R. Cintrón Cabrera, PhD. Universidad Ana G. Méndez, Puerto Rico
Gladys Cora Izquierdo, PhD. Universidad Ana G. Méndez, Puerto Rico
Gregorio Villegas Cobian, PhD. Universidad Ana G. Méndez, Puerto Rico
María C. Ortiz, PhD. Universidad Ana G. Méndez, Puerto Rico
Lourdes Maldonado, PhD. Universidad Ana G. Méndez, Puerto Rico
Mariwilda Padilla, PhD. Universidad Ana G. Méndez, Puerto Rico
Ángel L. Canales Encarnación, Ed.D. Universidad Ana G. Méndez, Puerto Rico
Judith A. González Rodríguez, Ed.D. Universidad Ana G. Méndez, Puerto Rico
Omar Ponce Rivera, PhD. Universidad Ana G. Méndez, Puerto Rico
Sonia Dávila Velázquez, Ed.D. Universidad Ana G. Méndez, Puerto Rico
Alicia González De la Cruz, PhD. Universidad Ana G. Méndez, Puerto Rico
Nellie Pagán Maldonado, PhD. Universidad Ana G. Méndez, Puerto Rico
Janette Orengo Puig, Ed.D. Universidad Ana G. Méndez, Puerto Rico
Daisy Rodríguez Sáez, Ed.D. Universidad Ana G. Méndez, Puerto Rico
Mildred Arbona Caballero, PhD., Universidad Ana G. Méndez, Puerto Rico
María Dolores Aponte Correa, PhD., Universidad Ana G. Méndez, Puerto Rico

Editorial Board of *International Journal of Educational Excellence* (IJEE).

ISSN (International Standard Serial Number): 2373-5929.

The Editorial Board members and the Institutional Committee members of the International Journal of Educational Excellence (IJEE) are not responsible of the opinions, analysis or results presented by the authors in their articles.

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:

https://cupey.uagm.edu/international_journal_educational_excellence

International Journal of Educational Excellence

Volume 6, Number 2 (2020)

ISSN 2373-5929

CONTENTS

THE PARADOXICAL RELATIONSHIP BETWEEN PRINCIPALS' TRANSFORMATIONAL LEADERSHIP STYLES AND TEACHERS' MOTIVATION

Michael Agyemang Adarkwah, & Yu Zeyuan.....15

STUDYING THE EQUIVALENCE OF TWO LANGUAGE VERSIONS OF A LARGE SCALE ASSESSMENT: A COMPARISON OF TEST TAKERS IN UNITED STATES AND PUERTO RICO

Jorge Carvajal Espinoza, & John Poggio.....29

PHILOSOPHY OF EDUCATIONAL RESEARCH: NEW EPISTEMOLOGICAL, METHODOLOGICAL AND HISTORICAL APPROACH

Omar A. Ponce, Nellie Pagán-Maldonado, & José Gómez Galán.....47

SCHOOL VARIABLES AND INCLINATION TOWARDS DROPOUT OF SECONDARY SCHOOL STUDENTS: A CASE STUDY

Abisola Oladeni Sakirudeen, & Taiwo Akinloye.....65

RISKS OF SOCIAL NETWORKS FOR MINORS: AN EXPLORATORY, DESCRIPTIVE AND MIXED-METHODOLOGY STUDY

Noelia Gutiérrez Martín, & Eva Ordóñez Olmedo.....75

The Paradoxical Relationship between Principals' Transformational Leadership Styles and Teachers' Motivation

Michael Agyemang Adarkwah^a, & Yu Zeyuan^a

Received: 13 August 2020 • Accepted: 30 September 2020

Abstract: Leadership and motivation are inseparable. Principals' transformational leadership has been a focus on education for over a decade because of the crucial role it plays in influencing the performance of teachers and students. There is a call for principals who are more transformational and less transactional. Prior research has established that principals who adopt the transformational leadership style can motivate their teachers to ensure the higher academic achievement of students. Nonetheless, there is limited study on the relationship between the transformational leadership styles of principals and teacher motivation in most developing countries such as Ghana. Using the Multifactor Leadership Questionnaire (MLQ 6S), this study investigates the four dimensions of transformational leadership; idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration of teacher motivation in some selected basic schools in Eastern Region, Ghana. Findings indicate that although principals self-reported higher transformational leadership style, it had no significant relationship with teacher motivation. Three of the four dimensions of transformational leadership negatively correlated with teacher motivation ("idealized influence, inspirational motivation, and intellectual stimulation). Teachers also reported low motivation. Further analysis revealed that principals equally practiced the transactional leadership style and less of the laissez-faire leadership style. The laissez-faire leadership style negatively correlated with teacher motivation. School administrators are encouraged to organize more leadership training programs for principals, and ensure teachers are adequately motivated to improve the academic performance of students.

Key-words: transformational leadership; teacher motivation; leadership; job satisfaction; academic performance.

^a Southwest University (China). Correspondence: Michael Agyemang Adarkwah, College of Education, 15th Floor, BRCIC Building, Tongchuan Road No.216, Licang District, Qingdao, 266061 Shandong, P.R. China. adarkwahmichael1@gmail.com.  ORCID 0000-0001-8201-8965

1. Introduction

Leadership and motivation are inseparable (Le Tellier, 2006). Leadership is the process of motivating a group of people towards the realisation of a common objective (Abdullah, Muhammad, & Nasir, 2019). Le Tellier (2006), in his book, mentioned that school leaders employ motivation to upgrade the efficiency of classroom and school organization. They establish motivational variables in the school and classroom context, and even in the community to ensure continuous school improvement. Principal leadership has been identified as a critical management skill to motivate a group of people towards the attainment of a common goal (Bello, Ibi, & Bukar, 2016). Principals are those who ensure effectiveness and educational change (Cheng & Townsend, 2000). Principal supportive leadership is instrumental in reducing teacher anxiety, isolation, frustration and regulating staff behaviors (Ackah-Jnr, 2018). Ackah-Jnr (2018) believes that motivation plays a key role in leadership and asserts that teachers need “extra motivation”. School heads indirectly affect the performance of teachers and students through their leadership practices and behaviors (Heck, Larsen, & Marcoulides, 1990). School leaders who possess an understanding of motivation theory are able to influence the performance of teachers in their schools (Prelli, 2016). Successful leaders indirectly promotes students’ learning by motivating their teachers (Leithwood, 2008). Studies have found that there is a relationship between principal’s leadership style and teacher motivation (Dou, Devos, & Valcke, 2016; Eyal & Roth, 2011; Ghazala, Riffat-un-Nisa, & Anam, 2015; Ling & Ling, 2012). The motivation, job satisfaction, and performance of teachers is affected by the kind of leadership style that is in place at work (Kiboss & Jemiryott, 2014). Principals who adopt a type of leadership style that provide support for teachers will contribute to the effectiveness of the school (Eraniil & Özbilen, 2017). The leadership practices of principals affect teacher job satisfaction and retention (Ladd, 2011). Wasserman et al. (2016) who examined the relationship between principal leadership style and teacher motivation concluded that principal leadership style has an impact on the motivation of teachers, and how they perceive the teaching profession. Leadership should be transformative to survive in complex environment (Balyer & Özcan, 2012). There is a need to maintain transformational leadership among principals (Haj & Jubran, 2016).

Traditionally, leadership in Ghana is not a new concept (Williams, 2011). Leadership plays an important role in different and complex social structure of most societies in the country (Dampson, Havor, & Laryea, 2018). School leadership in Ghana is very important and ought to be transformative in nature (Afful-Broni, 2004). One major problem facing the Ghana Education Service (GES) is school leadership and this has affected the performances of

basic schools in the country (Edwards & Aboagye, 2015). Donkor (2015) who examined the leadership preparedness in Ghana basic schools found out that in all the thirty-eight (38) training institutions in Ghana, pre-service teachers are not taught school leadership as a full course in Ghana. This suggests that pre-service teachers who will eventually become basic school leaders in the future are not adequately equipped to assume leadership roles in basic schools in Ghana. The poor performance of students in the West African Examination Council's (WAEC) Basic Education Certificate Examination (BECE) in Ghana has led to a public outcry on school leadership in the country (Edwards & Aboagye, 2015). It is also found in another study that principals' leadership style used in the colleges of Ghana is to inspire a shared vision in teachers, but practices are weak (Atakora, 2019). Edwards & Aboagye (2015) believes that leadership should be capable to bring about efficiency and results, and should be full of countless transformative ideas that ensures high performance of staff and students. Gyasi, Xi, & Owusu-Amponsah (2016) confirmed that headmasters are not well equipped in leadership practices and advocates GES to address the problem in the institutions in Ghana. There is a need to improve school leadership and management in all schools in Ghana (Ministry of Education, 2018). One of the core aims of transformational leadership is to reform low-achievement institutions for it to be effective in the academic and educational setting through motivating workers to be innovative, and providing them with a sense of freedom (Haj & Jubran, 2016). The purpose of this research is to investigate the transformational leadership style used by principals in some selected basic schools in the Eastern Region of Ghana and its relationship with teacher motivation in the view of improving higher performances of teachers and students in Ghana. Findings from the study adds to existing literature on the relationship between principals' transformational leadership style and teacher motivation and address the gap of the subject in the Ghanaian context. The researcher attempts to re-consider transformational leadership used by principals in basic schools in Ghana in motivating teachers towards school improvement, and to emphasize the need of GES to implement leadership courses in training schools in Ghana.

2. Literature Review

2.1. Principals' Transformational Leadership Style

Research on transformational leadership have been on the increase over the past three decades in diverse context such as education, military, corporations, and politics (Balwant, 2019). Transformational leadership is considered as one of the most influential leadership models in the field of education (Berkovich, 2016; Crowne, 2019). Transformational leadership is a postmodern leadership approach where the leader is observable and measurable (Ustun, 2018). Transformational Leadership was first introduced

by Bass (1985). A transformational leader refers to a person who comprehend a realistic vision of the future that can be conveyed and shared, motivates subordinates intellectually, and addresses individual differences among subordinates (Balwant, Birdi, Stephan, & Topakas, 2018). Bass (1999) also define a transformational leader as one who has the ability to inspire followers to look beyond personal interests and elevates the subordinates' level of maturity, sense of achievement, well-being for people, organization and community. Traits associated with transformational leadership is exhibiting idealized influence, instilling confidence, respect and trust in organizational members, acting as role models, and expressing faith in organizational members (Al-husseini & Elbeltagi, 2018; Crowne, 2019). Sharma, Nagar, & Pathak (2012) asserts that a transformational leader encourages team work, is sensitive to the needs of followers, and tolerate diversity.

According to Bass (1985, 1990, 1999) and Avolio & Bass (2004), there are four dimensions of transformational leadership, namely; *charismatic behavior, inspirational motivation, individualized consideration, and intellectual stimulation*. Bass termed charismatic behavior as idealized influence. Both *idealized influence* and *inspirational motivation* entails designing a better future for the organization, and articulating how it can be attained, setting examples and high standards of performance to be followed, and exhibiting determination and confidence. *Individualized consideration* is depicted by giving attention to the developmental needs of subordinates, supporting them, and coaching their development Lastly, *intellectual stimulation* involves encouraging followers to be creative and innovative. Transformational leadership is also associated with four other concepts; challenging the process, modelling the way, inspiring followers, encouraging the heart, and empowering followers through shared vision and trust (Curtis, De Vries, & Sheerin, 2011; Kouzes & Posner, 2002). Transformational leadership theory emphasizes on reconstructing and transforming schools to meet the educational demands of the 21st century (Berkovich, 2016). Transformational leaders challenge themselves and their followers to achieve success in the organization (Crowne, 2019). They also challenge the practical approaches to problems and the status quo, and take risks (Lowe, Kroeck, & Sivasubramaniam, 1996).

Transformational leaders embrace dynamism, uncertainty, and complexity while building relationship that hinges on trust and shared vision (Clancy, Ferreira, Rainsbury, Rosenau, & Lock, 2017). Principals consider transformative leadership as significant (Balyer & Özcan, 2012). Transformational leadership is for those principals who can create conditions to pioneer a school to a new level (Yang, 2014). Teachers who work under principals who adopts the transformational leadership style are often satisfied and motivated to accomplish their tasks (Layton, 2003). Transformational leadership is applicable in the instructional context, helps to develop students

ability to generate ideas and examine situations critically (Pounder, 2003; Pounder, 2008). There is a relationship between transformational leadership exhibited by teachers in teaching and student motivation and learning (Noland & Richards, 2014). Although all leadership styles have some kind of influence on teachers and students' academic achievement, the transformational leadership style is considered to be the most efficient in reforming and restructuring schools (Gyasi, Xi, & Owusu-Ampomah, 2016). There's a correlation between transformational leadership and quality of work (Kallapadee, Tesaputa, & Somprach, 2017). Transformational leadership is a crucial element for innovation (Aguas, Zapata, & Arellano, 2017). Atakora (2019) is one of the few researchers who concluded in his study that transformational leadership has no direct impact on the job satisfaction of teachers, but fringe benefits, professional development, salary, and working environment.

2.2. *Teacher Motivation*

Teacher motivation is simply the desire to teach and an individual's interpersonal style toward students when teaching (Gagne, 2014). Teacher motivation includes the practices they employ to ensure students' determination which ultimately leads to their success (Collie, Granziera, & Martin, 2019). Teacher motivation underpins teacher professional teaching practices and engagements (Thoonen, Slegers, Oort, Peetsma, & Geijsel, 2011). In diverse cultures, teacher motivation has been linked to teaching quality, teacher commitment, and engagement which tend to influence students' outcomes in the classroom (Klassen, Al-Dhafri, Hannok, & Betts, 2011). To ensure teachers well-being and effective learning, there is a need to provide support (motivation) for teachers (Durksen, Klassen, & Daniels, 2017). Motivated teachers tend to be better performers in instructing students (Afshar & Doosti, 2016). The Ministry of Education assesses teachers' performance by measuring their dedication and commitment (Seniwoliba, 2013). Teacher's performance in contributing to students' success is affected by their motivation (Akuoko, Dwumah, & Baba, 2013). Teachers are vital figures in terms of their ability to motivate students for them to achieve academic success through their motivational strategies (Soenens, Sierens, Vansteenkiste, Dochy, & Goossens, 2012). Teacher motivation is regarded as one of the significant factors that influence students' interest in a particular subject (Keller, Neumann, & Fischer, 2017). Studies have proved that teacher motivation is a critical factor in teachers' commitment to their work and students' lessons at school (Davidson, 2007).

Prior studies have also identified teacher motivation as a decisive factor which is strongly related to students' learning (Klusmann & Richter, 2016). A large-scale survey which was conducted in an Iranian Junior Secondary School revealed that satisfied teachers strikingly differed from their

dissatisfied colleagues. While motivated teachers showed a lot of commitment to teaching, that was not the case for demotivated teachers (Afshar & Doosti, 2016). Another study which investigated the impact of teacher motivation on students' performance in Iran and Russia suggested that there is a significant positive correlation between teacher motivation and students' achievement (Taştan, et al., 2018). Teacher motivation has been also linked to higher educational reform and student motivation (Han & Yin, 2016). Teachers motivate students to ensure high academic performance by engaging interpersonally in their learning, preparing a structure for education, and increasing their autonomy (Ahn, Patrick, Chiu, & Levesque-Bristol, 2018). Mary (2010) also posited that to get the best performance from teachers for students to excel academically, there must be both intrinsic and extrinsic motivational systems for teachers. She noted job satisfaction, promotion, career achievement to be examples of intrinsic motivation, and salary, free meals, allowances to be examples of extrinsic motivation.

In order to highly motivate teachers, they should be adequately remunerated (Nwokeocha, 2017). Students are sometimes motivated to join the teaching profession because of the level of salary (Goller, Ursin, Vahasantanen, & Festner, 2019). Countries who offer high salary to their teachers are likely to contribute positively to students' academic performance and are also expected to have higher achievements at the national level (Akiba, Chiu, Shimizu, & Liang, 2012). Good salary serves as a motivation for academic staffs, including university teachers to be satisfied at work (Osakwe, 2014). Teachers play a crucial role in students' performance, better pay leads to higher motivation and satisfaction of teachers (Wamitu, 2018). Financial incentive is a mechanism that should improve the quality of teaching. In 2005, the Teacher Law was passed in Indonesia to address the weakness in teacher effectiveness, poor levels of pay and low motivation. Huge incentives were introduced to give certified teachers a professional allowance. However, financial incentives may not be associated with improved learning (Ree, Al-Samarrai, & Iskandar, 2012). Though some researchers argue that monetary incentives improve performance and learning, recent studies with large samples suggest that it only increase performance quantity but not quality. Thus, in some way, monetary incentives are ineffective (Hulleman & Barron, 2010).

An important construct in teacher motivation research is teacher self-efficacy (Cobanoglu & Capa-Aydin, 2019). Teacher self-efficacy is a predictor of teaching practices, and to the extent to which a teacher will be involved in a classroom even when faced with challenges (Elisa Oppermann, Martin Brunner, & Yvonne Anders, 2019; Sarac & Aslan-Tutak, 2017). The academic achievement of students and the job satisfaction of teachers are impacted by teacher self-efficacy (Korte, 2018; Ninkovic' & Floric', 2018). Teachers with low self-efficacy are one of the contributing factors of teacher

attrition (Brown, Lee, & Collins, 2014; McKim & Velez, 2015) while high teacher self-efficacy is linked with teacher career commitment, teacher job satisfaction, student achievement, and teacher retention (Hancock & Scherff, 2010; Kelly & Northrop, 2015).

One deciding factor in teacher motivation has been identified as the interpersonal relationship between the teacher and his students (Hagenauer, Hascher, & Volet, 2015). The researchers found out that students who formed a positive relationship with their teachers made their teachers joyful, whereas negative relationships between students and their teachers made their teachers angry. Also, when students form good relationships with their teachers, they can navigate their way through school and improve their academic performance (Valiente, Julia, Swanson, Bradley, & Groh, 2019). Haruthaithanasan (2018) found out that educational reforms affect teacher motivation, and teacher motivation affects students' academic achievements. According to him, when teachers are in positive school environments, it promotes the academic performance of students. Teachers in supportive school climates are often kind, warmhearted, and friendly, and are more likely to provide useful feedback to their students.

2.3. Prior Research on Principals' Transformational Leadership Style and Teacher Motivation

Transformational leadership style is associated with greater teacher motivation, effort, and commitment (Berkovich & Eyal, The mediating role of principals' transformational leadership behaviors in promoting teachers' emotional wellness at work: A study in Israeli primary schools, 2016). Principals who practised the transformational leadership style increase teacher motivation and commitment (Raman, Mey, Don, Daud, & Khalid, 2015). School improvement is less likely to occur when there is no teacher motivation and trust between teachers and principals (Eliophotou-Menon & Androula, 2016). Eyal and Roth (2011) showed that transformational leadership style is positively associated with teacher motivation while transactional leadership style is negatively linked to teacher motivation. Alfahad, Alhajeri, & Alqahtani (2013) investigated whether there is a relationship between principal's leadership style and teacher achievement motivation. Their study revealed that both transformational and transactional leadership style motivated teachers to achieve educational goals. According to them, transformational leaders motivate teachers through task achievement while transactional leaders motivate teachers through bonuses and punishment. Practising transformational leadership ends in the job satisfaction of teachers (Griffith, 2004). Cemaloğlu, Sezgin, & Kılınc (2012) in their study found that there is a relationship between the transformational and transactional leadership style of principals and teacher commitment in an organization. Both transformational and transactional principal leadership

styles have a positive relationship with teacher job satisfaction, however, transformational leadership style was found to be closely correlated to teacher job satisfaction (Nazim & Mahmood, 2016). Transformational leadership and teacher job satisfaction are closely related (Haj & Jubran, 2016). Cerit (2009) found that there is a positive correlation between servant leadership style and teacher commitment, job satisfaction, and improved student learning. Laissez-faire leadership style was also found to be negatively correlated to teacher motivation (Kadi, 2015). However, Eres (2011) and Gallmeier (1992) found a contrasting result which suggests that the leadership style of a principal has no correlation with teacher motivation.

Leaders who adopt the transformational leadership style are able to perceive the needs of followers (such as teachers) and use it to motivate them (Balyer & Özcan, 2012). Transformational leaders motivate and influences organization members to build trust and confidence in the organization (Kallapadee, Tesaputa, & Somprach, 2017). There is a need for principals to improve their transformational leadership to increase the morale of members, motivate staffs, and improve their satisfaction having the overall objectives of the school in mind (Yang, 2014). The emotional intelligence of followers is linked with transformational leadership (Aguas, Zapata, & Arellano, 2017). A study conducted in Greece revealed that teachers felt more satisfied when their principals practised the transformational leadership style as opposed to other leadership styles. By motivating teachers to work towards the fulfilment of school objectives and giving them extra attention, principals using the transformational leadership style makes their teachers satisfied (Aydin, Sarier, & Uysal, 2013). Sayadi (2016) also found that principals' transformational leadership plays an essential role in the intrinsic and extrinsic motivation of teachers (Sayadi, 2016).

3. Methodology

3.1. Research Design

A quantitative research design was used to investigate the relationship between principals' transformational leadership styles and teacher motivation. A non-experimental correlational design was used to study the relationship between the two constructs. Correlational research design is an aspect of quantitative study in which researchers use "correlation statistical test to describe and measure the degree of association (or relationship) between two or more variables or sets of scores" (Creswell, 2018, p. 338). A non-experimental correlational design, also known as ex-post facto design examines conditions that have already occurred and investigate relationships between these circumstances, behaviors, and characteristics (Leedy & Ormrod, 2010). This approach was chosen because the researcher does not manipulate directly the characteristics that serves as independent and

dependent variables in the study since their manifestations had already occurred (Cohen, Manion, & Morrison, 2007).

3.2. *Research Questions*

1. How do principals perceive their transformational leadership attributes?
2. How do teachers perceive their motivation as professionals working in the GES?
3. The main research question leading this investigation is to: Examine the relationship between principals' transformational leadership and teacher motivation in the view of improving the academic performance of students in the basic schools of Ghana.

This question seeks to investigate how the four dimensions of transformational leadership (Bass, 1985, 1990, 1999) are related to the intrinsic and extrinsic motivation of teachers in ensuring higher academic achievement of students in Ghanaian basic schools.

- a. What is the relationship between idealized influence and teacher motivation?
- b. What is the relationship between inspirational motivation and teacher motivation?
- c. What is the relationship between individualized consideration and teacher motivation?
- d. What is the relationship between intellectual stimulation and teacher motivation?

3.3. *Hypothesis*

- H0. There is no statistically significant relationship between idealized influence and teacher motivation.
- H01. There is no statistically significant relationship between inspiration motivation and teacher motivation.
- H02. There is no statistically significant relationship between individualized consideration and teacher motivation.
- H03. There is no statistically significant relationship between intellectual stimulation and teacher motivation.

3.4. *Study Population and Sampling*

The study was conducted in Nsawam-Adoagyiri Municipal Assembly in the Eastern Region of Ghana. The municipal has 51 basic schools, 54 principals, and 1,746 teachers. The target population consisted of all school principals and teachers in the municipal assembly. Two sampling techniques were used. First, purposive sampling was used to select 5 schools whose

principals practised the transformational leadership style and have at least five years of working experience at the school. Random sampling technique was used to select 20 teachers from each of the 5 schools. In all, 5 principals and 100 teachers were used in the study. Teachers included in the study were those who had spent at least two years at the school as a professional teacher at the Ghana Education Service (GES). This will enable teachers to effectively assess the intrinsic and extrinsic motivational variables at play in their schools and affecting them as professionals under the GES.

Personal Information	Frequency	Percentage
Gender		
Male	44	44.0
Female	56	56.0
Total	100	100.0
Age		
25-34	43	43.0
35-40	30	30.0
41-55	20	20.0
56-60	7	7.0
Total	100	100
Marital Status		
Married	59	59.0
Single	41	41.0
Total	100	100.0
Education Level		
Diploma	29	29.0
Bachelor's	53	53.0
Master's	18	18.0
Total	100	100.0
Years in Service		
1-10	40	40.0
11-20	37	37.0
21-30	23	23.0
Total	100	100.0

Table 1. Demographic Characteristics of Participants (Teachers)

The above table shows the demographic information about the “teacher” participants. The number of males was 44 whereas females were 56. The number of teachers between age 25-34 was 43, 35-40 were 30, 41-55 were 20, and 56-60 were 7. Also, 59 of the teachers were married while 41 were single. By educational level, 29 of the teachers had a diploma, 53 had bachelor’s, and 18 had Master’s. The number of teachers having 1-10 years of teaching experience was 40, 11-20 years of teaching experience were 37, and 21-30 years of teaching experience were 23.

3.5 Measures

Transformational Leadership: Data on principals' transformational leadership style were collected using the Multifactor Leadership Questionnaire (MLQ6S), which was originally developed by Bass (2004). MLQ (6S) is a free and self-assessment leadership scale containing 21 items that highlights 7 factors of leadership styles. The scale comprises of four subscales measuring the elements of transformational leadership used by principals (*idealized influenced, inspirational motivation, individualized consideration, and intellectual stimulation*), two subscales of transactional leadership (*contingent reward, management-by-exception*), a subscale of *Laissez-faire leadership* (a type of non-leadership style where the leader abandons duties and avoid taking decisions). It is a five Likert scale that differentiates the response of participants ranging from 1 (strongly agree) to 5 (strongly disagree). The scale is widely used by researchers worldwide. It has been validated as having a good internal consistency (a Cronbach's Alpha value of 0.845) (Costache, 2018).

Teacher Motivation: The Teacher Motivation Assessment Scale (TMAS) developed by Obunadike (2013) was used to collect information on how teachers perceived their level of motivation. The scale was validated in Nigeria using three universities and is known to have a good internal consistency with a Cronbach's alpha value of 0.74. It is a four-point Likert scale consisting of 22 items with rating options ranging from strongly agree (4) to strongly disagree (1). The scale is designed to measure 5 motivational constructs; attitude, reward, commitment, punishment and interest. The researcher self-designed items to collect the demographic data of the teachers based on their age, gender, education level, and number of years in service.

3.6. Procedures

After the consent of the Municipal Education Office was gained, an introductory letter was sent to each principal of the 5 selected schools detailing the purpose of the study. The Multifactor Leadership Questionnaire (MLQ6S) was administered to the 5 principals of the selected schools for them to assess how they perceived their transformational leadership attributes. The Teacher Motivation Assessment Scale (TMAS) was sent to the 100 randomly chosen teachers to assess how they perceive their motivation as professionals working under the GES in their schools.

3.7. Data Analysis

The Statistical Package for Social Science (SPSS) 20.0 was used to analyze the quantitative data collected. Descriptive statistics were used to analyze the first two research questions ("How do principals perceive their transformational leadership attributes?", and "how do teachers perceive their motivation as professionals working in the GES?") while correlational

analysis was used to gain insights to the third research question (“What is the relationship between principal transformational leadership attributes and teacher motivation?”). To test the null hypothesis, statistical significance was set at $p=0.05$. The scores were presented in number, minimum, maximum, mean, and standard deviations.

4. Results

1. How do principals perceive their transformational leadership attributes?

Leadership Dimension	Number of respondents	Mean	Standard deviation
1. Idealized Influence	5	3.53	.38
a. I make others feel good to be around me	5	3.60	.54772
b. Others have complete faith in me	5	3.40	.54772
c. Others are proud to be associated with me	5	3.60	.54772
2. Inspirational Motivation	5	3.47	.18
a. I express with a few simple words what we could and should do	5	3.40	.54772
b. I provide appealing images about what we can do	5	3.60	.54772
c. I help others find meaning in their work	5	3.40	.54772
3. Intellectual Stimulation	5	3.47	.18
a. I enable others to think about old problems in new ways	5	3.40	.54772
b. I provide others with new ways of looking at puzzling things	5	3.60	.54772
c. I get others to rethink ideas that they had never questioned before	5	3.40	.54772
4. Individual Consideration	5	3.53	.18
a. I help others develop themselves	5	3.60	.54772

b.	I let others know how I think they are doing	5	3.60	.54772
d.	I give personal attention to others who seem rejected	5	3.40	.54772
5.	Contingent Reward	5	3.53	.29
a.	I tell others what to do if they want to be rewarded for their work	5	3.40	.54772
b.	I provide recognition/rewards when others reach their goals	5	3.60	.54772
c.	I call attention to what others can get for what they accomplish	5	3.60	.54772
6.	Management-by-exception	5	3.47	.38
a.	I am satisfied when others meet agreed-upon standards	5	3.60	.54772
b.	As long as things are working, I do not try to change anything	5	3.80	.44721
c.	I tell others the standards they have to know to carry out their work	5	3.00	.70711
7.	Laissez-faire leadership	5	2.30	.47
a.	I am content to let others continue working in the same ways always	5	1.60	.54772
b.	Whatever others want to do is OK with me	5	1.80	.83666
c.	I ask no more of others than what is absolutely essential	5	3.60	.54772

Table 2. Descriptive statistics of the leadership style of principals

Overall, the five principals self-reported that the transformational leadership dimension which they practised the most were “idealized influence” (M=3.53, SD=0.38) and “individual consideration” (M=3.53, SD=0.18), followed by “inspirational motivation” (M=3.47, SD=0.18) and “intellectual stimulation”(3.47, SD=0.18) based on the scores attained on a

four-point Likert scale on the four dimensions of transformational leadership. Additionally, scores were generated on their transactional leadership style (contingent reward and management-by-exception) and laissez-faire leadership style. The scores obtained were; contingent reward (M=3.53, SD=0.29), management-by-exception (M=3.47, SD=0.38), and laissez-faire leadership (M=2.30, SD=0.47). The means scores suggest that the principals perceived they equally practised both the transformational leadership and transactional leadership style but less of laissez-faire leadership style.

2. How do teachers perceive their motivation as professionals working in the GES?

Teacher Motivation Assessment Sub-Scales					
	N	Minimum	Maximum	Mean	Std. Deviation
Attitude	100	1.00	4.00	2.34	.48659
Commitment	100	1.25	3.75	2.44	.54802
Reward	100	1.00	3.60	2.23	.57516
Punishment	100	1.20	4.00	2.48	.54003
Interest	100	1.00	4.00	2.29	.58354

Table 3. Descriptive statistics of teacher motivation

Generally, teachers reported low motivational levels. The descriptive statistics indicate that the average scores for attitude (M=2.34, SD=0.49), commitment (M=2.44, SD=0.55), reward (M=2.23, SD=0.58), punishment (M=2.48, SD=0.54), and interest (M=2.29, SD=0.58) are low. This means that the basic school teaches attitude and commitment towards the profession are low. Furthermore, reward and punishment systems put in place by educators are not effective in improving the motivation of the teachers. Also, strategies by administrators to keep the teachers interested in the profession are low. However, teachers reported improved motivation on the “punishment” dimension than all other dimensions of the Teacher Motivation Assessment Scale (TMAS).

Subscales of TMAS	N	Strongly Disagree	Disagree	Agree	Strongly Agree	Total
Frequency						
1. Attitude						
a. Adequate facilities are made available to enhance our job performance	8	39	52	1		
b. There is a fair	6	46	46	2		

	consideration for all teachers in assignment of responsibilities				
c.	The government and school authority, usually stimulate and encourage teachers to greater work efficiency	14	35	46	5
		100			100
d.	Conditions of service for teachers are stream-lined to enhance their performance	28	45	22	5
2. Commitment					
a.	The authority provides enough incentives to challenge teacher productivity	41	38	20	1
b.	Teachers are allowed to express their feeling about their jobs	9	25	60	6
c.	There is approval for teachers who apply for in-service training	4	27	55	14
d.	Teachers are usually given assistance in solving their personal problems	13	32	43	12
3. Reward					
a.	Adequate leisure activities/programs are enjoyed by teachers	11	27	44	18
b.	Teachers receive adequate commendation	27	39	27	7

	for jobs well done				
c.	Teachers who go for further studies are recognized by the authority through instant promotion or higher rank when they successfully complete their studies	23	41	24	12
d.	Teachers are promoted regularly without prejudice	22	38	26	14
e.	Teachers are paid monies to enable them attend seminars and workshops	48	35	11	6
4. Punishment					
a.	Usually, there is poor human relationship between teachers and the school authority	11	25	39	25
b.	Basic allowances accruing from extra duties are not made available to teachers	13	18	45	24
c.	Erring teachers are not included in school activities that yield money to participants	28	30	32	10
d.	Teachers are deprived compensations that are due to them	15	44	30	11
e.	Teachers are denied up-to-date	23	38	35	4

	information about their jobs				
5. Interest					
a.	The authority often uses constructive criticism in correcting defaulting teachers	28	20	44	8
b.	Teachers' social status are often compromised	19	37	33	11
c.	Teachers enjoy adequate welfare scheme	15	51	25	9
d.	There is a special package for teachers whose students excel in examinations	25	33	36	6

Table 1. Frequencies of teacher response to TMAS

Analyzing the data descriptively, in the area of “attitude”, a significant amount of the teachers believed that there were adequate facilities in the school to enhance their job performance. There was no difference between the teachers who disagreed and agreed that there is a fair consideration for teachers in terms of the assignment of tasks. Strikingly, a greater amount of the teachers reported that the working conditions of the profession are poor. As regards “commitment”, most teachers believed incentives to challenge their productivity was low. However, more than half of the teachers asserted that they are able to express their feelings about their work. Approval for teachers to partake in in-service training and assistance given to teachers by school leaders were all inadequate. When it comes to “reward”, close to half of the teachers were of the opinion that they enjoyed adequate leisure activities, but commendations on their jobs were minimal. The number of teachers who disagreed promotion opportunities was readily available outweighed those who agreed that there are opportunities for teachers to be promoted. Looking at “punishment”, ample of the teachers agreed that there were good human relationships at their schools and basic allowances were made available. In terms of “interest”, what stands out is that, more than half of the teachers disagreed that they enjoy adequate welfare scheme, and that their social status is low.

3. The relationship between principals’ transformational leadership and teacher motivation

		Teacher Motivation
Transformational Leadership Attributes	Pearson Correlation (r)	.596
	Sig. (2-tailed)	.289

Table 5. Correlation between transformational leadership attributes and teacher motivation

		Teacher Motivation
Multifactor Leadership Attributes	Pearson Correlation (r)	-.630
	Sig. (2-tailed)	.255

Table 6. Correlation between multifactor leadership attributes and teacher motivation

Correlational analysis demonstrates no significant relationship between the four attributes of transformational leadership (*idealized influenced, inspirational motivation, individualized consideration, and intellectual stimulation*) and teacher motivation. Additionally, “table 6” reveals that there is a negative correlation between the multifactor leadership attributes of principals and teacher motivation. Statistical test with significance level set at $p=0.05$ was computed.

Transformational Leadership Dimension	Pearson (r)	Sig. (p)
Idealized Influence	-.648	.237
Inspirational Motivation	-.128	.838
Intellectual Stimulation	-.267	.664
Individual Consideration	.267	.664

Table 7. Correlation between transformational leadership dimensions and teacher motivation

The table shows the magnitude of correlation coefficient (Pearson, ‘r’) between each of the four dimensions of transformational leadership style and teacher motivation. Significant level was set at $p=0.05$. The results indicate a negative relation between “idealized influence”, “inspirational motivation”, “intellectual stimulation” and teacher motivation ($r = -0.648$, $p=0.237$, $r = -0.128$, $p=0.838$, $r = -0.267$, $p=0.664$, respectively). There was a positive but not statistically significant relationship between “individual consideration” and teacher motivation ($r = 0.267$, $p=0.664$). Correlational analysis done on each of the four transformational leadership attributes and teacher motivation shows that there is no statistically significant relationship between the transformational leadership style of principals and teacher motivation. This means that all the null hypothesis (H0, H01, H02, H03) were maintained.

		Attitude	Commitment	Reward	Punishment	Interest
Idealized Influence	Pearson Correlation	-.480	-.747	-.813	-.628	-.615

	Sig. (2-tailed)	.413	.147	.094	.257	.269
Inspirational Motivation	Pearson Correlation	-.389	-.389	-.247	.050	-.320
	Sig. (2-tailed)	.518	.518	.689	.936	.599
Intellectual Stimulation	Pearson Correlation	.444	.167	-.247	-.452	-.120
	Sig. (2-tailed)	.453	.789	.689	.444	.847
Individual Consideration	Pearson Correlation	-.444	-.167	.247	.452	.120
	Sig. (2-tailed)	.453	.789	.689	.444	.847
Contingent Reward	Pearson Correlation	.748	.408	.043	-.185	.196
	Sig. (2-tailed)	.146	.495	.945	.766	.752
Management-by-exception	Pearson Correlation	.347	.347	.559	.266	.808
	Sig. (2-tailed)	.567	.567	.327	.666	.098
Laissez-faire leadership	Pearson Correlation	-.645	-.968**	-.888*	-.876	-.388
	Sig. (2-tailed)	.239	.007	.044	.052	.519

Correlation is significant at the 0.01 level (2-tailed).**

Correlation is significant at the 0.05 level (2-tailed).*

Table 8. Correlation between Multifactor Leadership dimensions and Teacher Motivation subscales

The results show that there is a negative correlation between “idealized influence” and all five subscales of teacher motivation; “attitude” ($r = -4.80$), “commitment” ($r = -0.747$), “reward” ($r = -0.813$), “punishment” ($r = -0.628$), and “interest” ($r = -6.15$). A negative correlation exists between “inspirational motivation” and four subscales of teacher motivation; “attitude” ($r = -0.389$), “commitment” ($r = -0.389$), “reward” ($r = -0.247$), and “interest” ($r = -0.320$). A negative correlation exists between “intellectual stimulation” and three subscales of teacher motivation; “reward” ($r = -0.247$), “punishment” ($r = -0.452$), and “interest” ($r = -0.120$). Finally, a negative correlation exists

between “individual consideration” and two subscales of teacher motivation; “attitude” ($r = -.444$), “commitment” ($r = -.167$).

Also, there is no statistically significant relationship between principal transactional leadership style (contingent reward and management-by-exception) and teacher motivation. However, there is a statistically significant negative relationship between principal laissez-faire leadership style and two dimensions of teacher motivation (“commitment”, Pearson “ r ” = -0.968 , and “reward”, Pearson “ r ” = -0.888).

5. Discussion

The study aimed to investigate the relationship between principals’ transformational leadership style and teacher motivation. Findings from the study revealed that there was no significant relationship between principal transformational leadership style and teacher motivation even though evidence exists that there is a statistically significant relationship between the two variables (Alfahad, Alhajeri, & Alqahtani, 2013; Berkovich & Eyal, 2016; Eyal & Roth, 2011; Eliophotou-Menon & Androula, 2016; Griffith, 2004; Raman, Mey, Don, Daud, & Khalid, 2015). However, the results of the study are consistent with few other studies which also found no significant relationship with transformational leadership style and teacher motivation (Eres, 2011; Dale, 2012; Drakpa, 2018). This suggests that it is possible for teachers to record low motivational levels even when led by transformational leader. Who found a weak negative relationship between transformational and leadership and teacher motivation opined that teacher motivation decreased as transformational leadership decreased (Reynolds, 2009). Leong & Fischer (2010) in discussing the research by Eres (2011) in Turkey opined that a plausible reason for this findings is that transformational leadership in eastern cultures is weak. Thus, transformational leadership is contextual. Atakora (2019) found out that although leaders in Ghana employed the “shared vision” type of leadership, leaders rarely put it into practice.

Further analysis revealed that there was no or little difference between the transformational leadership style used by principals and their transactional leadership styles. Also, principals practised less of the laissez-faire leadership style. Since several studies (Eyal & Roth, 2011; Kunter et al, 2013; Nazim & Mahmood, 2016; Kriegbauma et al., 2019) have revealed that transactional leadership is more prone to teacher burnout and stress than transformational leadership, this could be a plausible reason why no significant relationship exists between transformational leadership style and teacher motivation in the study.

The low motivation of teachers in Ghana has been attributed to leadership and supervisory practices, low remuneration, less chance for promotion, unfavorable educational policies, low salaries, poor working

conditions, and low occupational status (Akuoko, Dwumah, & Baba, 2013; Atakora, 2019; Bennell & Akyeampong, 2007; Bennell, 2004; Salifu, Barriers to teacher motivation for professional practice in the Ghana education service, 2014). Findings from the teacher motivation survey indicate that teachers believe their welfare is not taken into consideration. Although the Ministry of Education ([MOE] 2017) asserted that they have recognized that teachers are integral to quality education and all policies (provision of incentives for teachers, pay their arrears, provide affordable houses, give teachers opportunities for professional development, restoration of trainee allowances, among others) on education will be teacher-centred in the next four years, teachers in Ghana still feel their welfare is not taken into consideration (Auwah, 2019). Also, teachers were of the opinion that their social status is compromised. Since social significance is one of the main motivators of entering the teaching profession (Berger & D'Ascoli, 2012) and teachers obtain satisfaction from high-order needs, including social relations and respect (Salifu & Agbenyega, 2013), it is imperative for school administrators and educators to establish mechanisms that would elevate the teaching profession.

6. Conclusion/Implications

The study results revealed that principals perceived that their transformational leadership were high, however, the teachers perceived their motivation to be low. Correlational analysis found out that there is no significant relationship between principals' transformational leadership style and teacher motivation, and a negative relationship between overall multifactor leadership attributes of principals and teacher motivation. This finding is in contrast with myriads of evidence that exists in literature that there is a significant relationship between transformational leadership and teacher motivation. This makes this study an isolated case among many studies. As already revealed, some of the plausible factors (i.e. incentives and educational policies) accounting for the low motivation of teachers may not be directly related to the transformational leadership style of principals. However, the results from the multifactor leadership questionnaire indicate that principals should improve upon their transformational leadership attributes like "idealized influence" and "inspirational motivation". It is imperative for principals to put into practice the transformational leadership style as they self-reported. Policymakers and school administrators should organize more leadership training programs for principals, inculcate leadership courses in the curriculum of teacher training institutions in the country, and also ensure teachers are adequately motivated to increase their productivity, which ultimately improve the academic performance of students (Alam & Farid, 2011; Keller, Neumann, & Fischer, 2017).

7. Recommendations

The purposive sampling was used to select 5 schools out of 51 schools in the municipality. This means that the large sample size of the country made it impossible to collect data from all the target population. Future researchers are encouraged to carry out a similar research in the municipality using many schools which will help in the reliability, validity, and generalizing of the findings obtained.

References

- Alam, M. T., & Farid, S. (2011). Factors affecting teachers motivation. *International Journal of Business and Social Science*, 2(1), 298-304.
- Abdullah, A. R., Muhammad, M. Z., & Nasir, N. A. (2019). The role of soft skills within business students towards graduate employability. *Journal of Entrepreneurship and Business*, 7(2), 1-14. doi:10.17687/JEB.07.02
- Ackah-Jnr, F. R. (2018). System and school-level resources for transforming and optimizing inclusive education in early childhood settings: What Ghana can learn. *European Journal of Education Studies*, 5(6), 203-220. doi:10.5281/zenodo.1494880
- Afful-Broni, A. (2004). *Theory and practice of educational leadership in Ghana*. Accra, Ghana: Yamens Press.
- Afshar, H. S., & Doosti, M. (2016). Investigating the impact of job satisfaction/dissatisfaction on Iranian English teachers' job performance. *Iranian Journal of Language Teaching Research*, 4(1), 97-115.
- Aguas, P. P., Zapata, L. V., & Arellano, D. L. (2017). Transformational leadership plans. *World Journal of Education*, 7(4), 1-11. doi:10.5430/wje.v7n4p1
- Ahn, I., Patrick, H., Chiu, M. M., & Levesque-Bristol, C. (2018). Measuring teacher practices that support student motivation: Examining the factor structure of the teacher as social context questionnaire using multilevel factor analyses. *Journal of Psychoeducational Assessment*, 37(6), 1-14. doi:10.1177/0734282918791655
- Akiba, M., Chiu, Y.-L., Shimizu, K., & Liang, G. (2012). Teacher salary and national achievement: A cross-national analysis of 30 countries. *International Journal of Educational Research*, 53, 171-181. doi:10.1016/j.ijer.2012.03.007
- Akuoko, K. O., Dwumah, P., & Baba, W. M. (2013). Teacher motivation and quality education delivery: A study of public basic schools in Tamale metropolis in Ghana. *International Journal of Social Science & Interdisciplinary Research*, 1(12), 29-46.

- Alfahad, H., Alhajeri, S., & Alqahtani, A. (2013). The Relationship between school principals' leadership styles and teachers' achievement motivation. *Chinese Business Review*, 12(6), 443-448.
- Al-husseini, S., & Elbeltagi, I. (2018). Evaluating the effect of transformational leadership on knowledge sharing using structural equation modelling: the case of Iraqi higher education. *International Journal of Leadership in Education*, 21(4), 506-517. doi:10.1080/13603124.2016.1142119
- Atakora, P. O. (2019). Leadership practices of principals of colleges of education and their influence on job satisfaction of tutors in Ghana. *The International Journal of Humanities and Social Studies*, 7(5), 32-43. doi:10.24940/theijhss/2019/v7/i5/HS1905-010
- Avolio, B. J., & Bass, B. M. (2004). *Multifactor Leadership Questionnaire: Manual and sample set*. California: Mind Garden, Inc.
- Awuah, J. J. (2019, December 10). *Teachers Continue strike over Mahama Arrears*. Retrieved from <https://dailyguidenetwork.com/teachers-continue-strike-over-mahama-arrears/>
- Aydin, A., Sarier, Y., & Uysal, S. (2013). The effect of school principals' styles on teachers' organizational commitment and job satisfaction. *Educational Sciences. Theory & Practice*, 13(2), 806-811.
- Balwant, P. (2019). Stay close! The role of leader distance in the relationship between transformational leadership, work engagement, and performance in undergraduate project teams. *Journal of Education for Business*, 94(6), 369-380. doi:10.1080/08832323.2018.1541851
- Balwant, P. T., Birdi, K., Stephan, U., & Topakas, A. (2018). Transformational instructor-leadership and academic performance: a moderated mediation model of student engagement and structural distance. *Journal of Further and Higher Education*, 43(7), 884-900. doi:10.1080/0309877X.2017.1420149
- Balyer, A., & Özcan, K. (2012). Cultural adaptation of headmasters' transformative leadership scale and a study on teachers' perceptions. *Eurasian Journal of Educational Research*, 49, 103-128.
- Bass, B. M. (1985). *Leadership and Performance beyond Expectations*. New York: London: Free Press.
- Bass, B. M. (1990). 'From transactional to transformational leadership: learning to share the vision'. *Organizational Dynamics*, 18(3), 19-31. doi:10.1016/0090-2616(90)90061-S
- Bass, B. M. (1999). Two decades of research and development in transformational leadership. *European Journal of Work and Organizational Psychology*, 8(1), 9-32. doi:10.1080/135943299398410
- Becker, E. S., Goetz, T., Morger, V., & Ranellucci, J. (2014). The importance of teachers' emotions and instructional behavior for their students'

- emotions. An experience sampling analysis. *Teaching and Teacher Education*, 43, 15-26. doi:10.1016/j.tate.2014.05.002
- Bello, S., Ibi, M. B., & Bukar, I. B. (2016). Principals' administrative styles and students' academic performance in Taraba state secondary schools, Nigeria. *Journal of Education and Practice*, 7(18), 62-69.
- Bennell, P. (2004). *Teacher motivation and incentives in Sub-Saharan Africa and Asia*. Brighton: Knowledge and Skills for Development.
- Bennell, P., & Akyeampong, K. (2007). *Teacher Motivation in Sub-Saharan Africa and South Asia*. London: DFID.
- Berger, J.-L., & D'Ascoli, Y. (2012). Becoming a VET teacher as a second career: Investigating the determinants of career choice and their relation to. *Asia-Pacific Journal of Teacher Education*, 40(3), 317-341. doi:10.1080/1359866X.2012.700046
- Berkovich, I. (2016). "School leaders and transformational leadership theory: time to part ways? *Journal of Educational Administration*, 54(5), 609-622. doi:10.1108/JEA-11-2015-0100
- Berkovich, I., & Eyal, O. (2016). The mediating role of principals' transformational leadership behaviors in promoting teachers' emotional wellness at work: A study in Israeli primary schools. *Educational Management Administration & Leadership*, 45(2), 16-335. doi:10.1177/1741143215617947
- Brown, A. L., Lee, J., & Collins, D. (2014). Does student teaching matter? Investigating pre-service teachers' sense of efficacy and preparedness. *Teaching Education*, 26(1), 77-93. doi:10.1080/10476210.2014.957666
- Burić, I. (2019). The role of emotional labor in explaining teachers' enthusiasm and students' outcomes: A multilevel mediational analysis. *Learning and Individual Differences*, 70, 12-2. doi:10.1016/j.lindif.2019.01.002
- Cheng, Y. C., & Townsend, A. C. (2000). *Educational Change and Development in the Asia-Pacific Region: Challenges for the Future*. Lisse Netherland: Swets & Zeitlinger.
- Clancy, T. L., Ferreira, C., Rainsbury, J., Rosenau, P., & Lock, J. (2017). Influence of co-teaching on the development of transformational leadership skills in undergraduate nursing students: a pilot study. *College Quarterly*, 20(3), 1-23.
- Cobanoglu, R., & Capa-Aydin, Y. (2019). Sources of teacher beliefs about developmentally appropriate practice: a structural equation model of the role of teacher efficacy beliefs. *European Early Childhood Education Research Journal*, 27(2), 195-207. doi:10.1080/1350293X.2019.1579547
- Cohen, L., Manion, L., & Morrison, K. (2007). *Research Methods in Education* (6 ed.). London: Routledge.

- Collie, R. J., Granziera, H., & Martin, A. J. (2019). Teachers' motivational approach: Links with students' basic psychological need frustration, maladaptive engagement, and academic outcomes. *Teaching and Teacher Education, 86*, 1-13. doi:10.1016/j.tate.2019.07.002
- Costache, A. (2018). Transformational leadership in Romania's education system: preliminary results. *Romanian Journal of Psychological Studies, 6*(2), 3-12.
- Creswell, J. W. (2018). *Research design: qualitative, quantitative, and mixed methods approaches* (Fifth edition ed.). Los Angeles: SAGE.
- Crowne, K. A. (2019). "Investigating antecedents of transformational leadership in students". *Journal of International Education in Business, 12*(1), 80-94. doi:10.1108/JIEB-07-2018-0029
- Curtis, E., De Vries, J., & Sheerin, F. (2011). Developing leadership in nursing: exploring core factors. *British Journal of Nursing, 20*(5), 306-309. doi:10.12968/bjon.2011.20.5.306
- Dale, J. C. (2012). *The correlation of the perceived leadership style of middle school principals to teacher job satisfaction and efficacy*. Lynchburg, VA: Liberty University.
- Dampson, D. G., Havor, F. M., & Laryea, P. (2018). Distributed leadership an instrument for school improvement: The study of public senior high schools in Ghana. *Journal of Education and e-Learning Research, 5*(2), 79-85. doi:10.20448/journal.509.2018.52 79.85
- Davidson, E. (2007). The pivotal role of teacher motivation in tanzanian education. *The Educational Forum, 71*(2), 157-166.
- Ding, H., Margaret, C., & Rubie-Davies. (2019). Teacher expectation intervention: Is it effective for all students? *Learning and Individual Differences, 74*, 1-10. doi:10.1016/j.lindif.2019.06.005
- Donkor, A. K. (2015). Basic school leaders in Ghana: How equipped are they? *International Journal of Leadership in Education, 18*(2), 225-238. doi:10.1080/13603124.2013.817610
- Dou, D., Devos, G., & Valcke, M. (2016). The relationships between school autonomy gap, principal leadership, teachers' job satisfaction and organizational commitment. *Educational Management Administration and Leadership, 45*(6), 959-977. doi:10.1177/1741143216653975
- Drakpa, D. (2018). *Relationship between principals' transformational leadership and teacher motivation in central schools of Zhemgang District, Bhutan*. RSU International Research Conference.
- Durksen, T., Klassen, R., & Daniels, L. M. (2017). Motivation and collaboration: The keys to a developmental framework for teachers' professional learning. *Teaching and Teacher Education, 67*, 53-66. doi:10.1016/j.tate.2017.05.011

- Edwards, A. K., & Aboagye, S. K. (2015). Assessing school leadership challenges in Ghana using leadership practices inventory. *International Journal of Education and Practice*, 3(4), 168-181.
- Eliophotou-Menon, M., & Androula, I. (2016). The link between transformational leadership and teachers' job satisfaction, commitment, motivation to learn, and trust in the leader. (M. Shurden, & S. Shurden, Eds.) *Academy of Educational Leadership Journal*, 20(3), 12-22.
- Elisa Oppermann, Martin Brunner, & Yvonne Anders. (2019). The interplay between preschool teachers' science self-efficacy beliefs, their teaching practices, and girls' and boys' early science motivation. *Learning and Individual Differences*, 70, 86-99. doi:10.1016/j.lindif.2019.01.006
- Erani, A. K., & Özbilen, F. M. (2017). Relationship between school principals' ethical leadership behaviours and positive climate practices. *Journal of Education and Learning*, 6(4), 100-112. doi:10.5539/jel.v6n4p100
- Eres, F. (2011). Relationship between teacher motivation and transformational leadership characteristics of school principals. *International Journal of Education*, 3(2), 1-17. doi:10.5296/ije.v3i2.798
- Eyal, O., & Roth, G. (2011). Principals' leadership and teachers' motivation Self-determination theory analysis. *Journal of Educational Administration*, 49(3), 256-275. doi:10.1108/09578231111129055
- Fauth, B., Decristan, J., Decker, A.-T., Büttner, G., Hardy, I., Klieme, E., & Kunter, M. (2019). The effects of teacher competence on student outcomes in elementary science education: The mediating role of teaching quality. *Teaching and Teacher Education*. doi: 10.1016/j.tate.2019.102882
- Gagne, M. (2014). *The Oxford handbook of work engagement, motivation, and self-determination theory*. New York: Oxford University Press.
- Ghazala, N., Riffat-un-Nisa, A., & Anam, N. (2015). Relationship between leadership styles of school heads and their teachers' job satisfaction as moderated by locus of control and task structure. *Journal of Educational Research*, 18(2), 14-31.
- Goller, M., Ursin, J., Vahasantanen, K., & Festner, D. (2019). Finnish and German student teachers' motivations for choosing teaching as a career. The first application of the FIT-Choice scale in Finland. *Teaching and Teacher Education*, 49, 235-248. doi:doi.org/10.1016/j.tate.2019.06.023
- Griffith, J. (2004). Relation of principal transformational leadership to school staff job satisfaction staff turnover and school performance. *Journal of Educational Administration*, 42(3), 333-356. doi:10.1108/09578230410534667
- Gyasi, R. S., Xi, W. B., & Owusu-Ampomah, Y. (2016). The effect of leadership styles on learners' performance. The case of Asonomaso

- Nkwanta in the Kwabre district assembly of Ashanti Region in Ghana. *Journal of Education and Practice*, 7(29), 8-17.
- Hagenauer, G., Hascher, T., & Volet, S. (2015). Teacher emotions in the classroom: Associations with students' engagement classroom discipline and the interpersonal teacher-student relationship. *European Journal of Psychology of Education*, 30, 385-403. doi:10.1007/s10212-015-0250-0
- Haj, S. J., & Jubran, A. M. (2016). The extent of principals' application of the transformational leadership and its relationship to the level of job satisfaction among teachers of Galilee region. *Journal of Education and Practice*, 7(11), 114-119.
- Han, J., & Yin, H. (2016). Teacher motivation: Definition, research development and implications for teachers. *Cogent Education*, 3(1), 1217819. doi:10.1080/2331186X.2016.1217819
- Hancock, C. B., & Scherff, L. (2010). Who will stay and who will leave? Predicting secondary English teacher attrition risk. *Journal of Teacher Education*, 61(4), 328-338. doi:10.1177/022487110372214
- Heck, R. H., Larsen, T. J., & Marcoulides, G. A. (1990). Instruction leadership and school achievement: Validation of a causal model. *Educational Administration Quarterly*, 26(2), 94-125. doi:10.1177/0013161X90026002002
- Hui, H., Jenatabadi, H. S., Ismail, N. A., & Radzi, C. W. (2013). Principal's leadership style and teacher job satisfaction: A case study in China. *Interdisciplinary Journal of Contemporary Research in Business*, 5(4), 175-184.
- Hulleman, C. S., & Barron, K. E. (2010). Performance pay and teacher Motivation: Separating myth from reality. *Phi Delta Kappan*, 91(8), 27-31. doi:10.1177/003172171009100806
- Janke, S., Bardach, L., Oczlon, S., & Lüftenegger, M. (2019). Enhancing feasibility when measuring teachers' motivation: A brief scale for teachers' achievement goal orientations. *Teaching and Teacher Education*, 83, 1-11.
- Kadi, A. (2015). Investigating teachers' organizational socialization levels and perceptions about leadership styles of their principals. *Journal of Education and Training Studies*, 3(4), 101-109. doi:10.11114/jets.v3i4.837
- Kallapadee, Y., Tesaputa, K., & Somprach, K. (2017). Strengthening the creative transformational leadership of primary. *International Education Studies*, 10(4), 179-186. doi:10.5539/ies.v10n4p179
- Keller, M. M., Neumann, K., & Fischer, H. E. (2017). The impact of physics teachers' pedagogical content knowledge and motivation on students' achievement and interest. *Journal of Research In Science Teaching*, 54(5), 586-614. doi:10.1002/tea.21378

- Kelly, S., & Northrop, L. (2015). Early career outcomes for the "Best and the Brightest": selectivity, satisfaction, and attrition in the beginning teacher longitudinal survey. *American Educational Research Journal*, 52(4), 1-31. doi:10.3102/0002831215587352
- Kiboss, J. K., & Jemiryott, H. K. (2014). Relationship between principals' leadership styles and secondary school teachers' job satisfaction in Nandi south district, Kenya. *Journal of Education and Human Development*, 3(2), 493-509.
- Klassen, R. M., Al-Dhafri, S., Hannok, W., & Betts, S. M. (2011). Investigating pre-service teacher motivation across cultures using the Teachers'. *Teaching and Teacher Education*, 27(3). 579-588. doi:10.1016/j.tate.2010.10.012
- Klusmann, U., & Richter, D. (2016). Teachers' emotional exhaustion is negatively related to students' achievement: Evidence from a large-scale assessment study. *Journal of Educational Psychology*, 108(8), 1193-1203. doi:10.1037/edu0000125
- Korte, D. S. (2018). Influence of social support on teacher self-efficacy in novice agricultural education teachers. *Journal of Agricultural Education*, 59(3), 100-123.
- Kouzes, J. M., & Posner, B. Z. (2002). *Leadership Challenge*. San Francisco: Jossey-Bass.
- Kriegbauma, K., Steinmayrb, R., & Spinath, B. (2019). Longitudinal reciprocal effects between teachers' judgments of students' aptitude, students' motivation, and grades in math. *Contemporary Educational Psychology*, 48, 67-84 doi:10.1016/j.cedpsych.2019.101807
- Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T., & Hachfeld, A. (2013). Professional competence of teacher: Effects on instructional quality and student development. *Journal of Educational Psychology*, 105(3), 805-820.
- Ladd, H. F. (2011). Teachers' perceptions of their working conditions: How predictive of planned and actual teacher movement? *Educational Evaluation and Policy Analysis*, 33(2), 235-261. doi:10.3102/0162373711398128
- Layton, J. K. (2003). *Transformational leadership and the middle school principal*. United States, Indiana: Purdue University.
- Le Tellier, J. P. (2006). *Quantum Learning & Instructional Leadership in Practice*. Thousand Oaks, California: Corwin: Sage Publications.
- Leedy, P., & Ormrod, J. (2010). *Practical Research* (9 ed.). Upper Saddle River, NJ: Pearson.
- Leithwood, K. H. (2008). Seven strong claims about successful school leadership. *School Leadership and Management*, 28(1), 27-42. doi:10.1080/13632430701800060

- Leong, L., & Fischer, R. (2010). Is transformational leadership universal? A meta-analytical investigation of multifactor leadership questionnaire means across cultures. *Journal of Leadership and Organizational Studies*, 18(2), 164-174.
- Ling, S., & Ling, M. (2012). The influence of transformational leadership on teacher commitment towards organization, teaching profession, and student learning in secondary schools in Miri, Sarawak, Malaysia. *International Journal for Educational Studies*, 4(2), 155-178.
- Lowe, K. B., Kroeck, K. G., & Sivasubramaniam, N. (1996). Effectiveness correlates of transformational and transactional leadership: A meta-analytic review of the MLQ literature. *The Leadership Quarterly*, 7(3), 385-415. doi:10.1016/S1048-9843(96)90027-2
- McKim, A. J., & Velez, J. J. (2015). Exploring the relationship between self-efficacy and career commitment among early career agriculture teachers. *Journal of Agricultural Education*, 56(1), 127-140. doi:10.5032/jae.2015.01127
- Ministry of Education. (2018). *Education Sector Analysis 2018*.
- Nazim, F., & Mahmood, A. (2016). Principals' transformational and transactional leadership style and job satisfaction of college teachers. *Journal of Education and Practice*, 7(34), 18-22.
- Ninkovic', S. R., & Floric', O. C. (2018). Transformational school leadership and teacher self-efficacy as predictors of perceived collective teacher efficacy. *Educational Management, Administration & Leadership*, 46(1), 49-64. doi:10.1177/1741143216665842
- Noland, A., & Richards, K. (2014). The relationship among transformational teaching and student motivation and learning. *The Journal of Effective Teaching*, 14(3), 5-20.
- Nwokeocha, S. (2017). Teacher quality, development and motivation in Nigeria. *African Educational Research Journal*, 5(2), 126-134.
- Obunadike, J. C. (2013). Development and validation of teacher motivation assessment scale for quality assurance in universities in Anambra State. *Journal of Educational and Social Research*, 3(6), 95-104.
- Osakwe, R. N. (2014). Factors affecting motivation and job satisfaction of academic staff of universities in South-South geopolitical zone of Nigeria. *International Education Studies*, 7(7), 43-51. doi:10.5539/ies.v7n7p43
- Pounder, J. S. (2003). Employing transformational leadership to enhance the quality of management development instruction. *Journal of Management Development*, 22(1), 1-13. doi:10.1108/02621710310454824
- Pounder, J. S. (2008). Transformational leadership: Practicing what we teach in the management classroom. *Journal of Education For Business*, 84(1), 2-6. doi:10.3200/JOEB.84.1.2-6

- Prelli, G. E. (2016). How school leaders might promote higher levels of collective teacher efficacy at the level of school and team. *English Language Teaching*, 9(3), 174-180. doi:10.5539/elt.v9n3p174
- Raman, A., Mey, C. H., Don, Y., Daud, Y., & Khalid, R. (2015). Relationship between principals' transformational leadership style and secondary school teachers' commitment. *Asian Social Science*, 11(15), 221-228. doi:10.5539/ass.v11n15p221
- Ree, J., Al-Samarrai, S., & Iskandar, S. (2012). *Teacher certification in Indonesia: a doubling of Pay, or a way to improve learning?* indonesia: Policy Brief.
- Reynolds, C. L. (2009). *Transformational leadership and teacher motivation in Southwestern Arizona high schools*. Capella University.
- Rimm-Kaufman, S., & Hamre, B. (2010). The role of psychological and developmental science in efforts to improve teacher quality. *Teachers College Record*, 2988-302.
- Ritzema, E. S., Deunk, M. I., Bosker, R. J., & van Kuijk, M. F. (2016). The relation between teacher-set performance goals and students' mathematical achievement. *Studies in Educational Evaluation*, 51, 17-28. doi:10.1016/j.stueduc.2016.08.003
- Ruiter, J. A., Poorthuis, A. M., & Koomen, H. M. (2019). Relevant classroom events for teachers: A study of student characteristics, student behaviors, and associated teacher emotions. *Teaching and Teacher Education*, 86. doi:10.1016/j.tate.2019.102899
- Ruzek, E. A., Hafen, C. A., Allen, J. P., & Gregory, A. (2016). How teacher emotional support motivates students: The mediating roles of perceived peer relatedness, autonomy support, and competence. *Learning and Instruction*, 42, 95-103. doi:10.1016/j.learninstruc.2016.01.004
- Salifu, I. (2014). Barriers to teacher motivation for professional practice in the Ghana education service. *Policy Futures in Education*, 12(5), 718-729.
- Salifu, I., & Agbenyega, J. S. (2013, May). Teacher Motivation and Identity Formation: Issues Affecting Professional Practice. *Journal of Educational Studies, Trends & Practices*, Vol. 3, 58-74.
- Sarac, A., & Aslan-Tutak, F. (2017). The relationship between teacher efficacy, and students' trigonometry self-efficacy and achievement. *International Journal for Mathematics Teaching and Learning*, 18(11), 66-83.
- Sayadi, Y. (2016). The effect of dimensions of transformation, transactional, and non leadership on the job satisfaction and organizational commitment of teachers in Iran. *Management in Education*, 30(2), 57-65. doi:10.1177/0892020615625363
- Schiefele, U. (2017). Classroom management and mastery-oriented instruction as mediators of the effects of teacher motivation on student

- motivation. *Teaching and Teacher Education*, 64, 115-126.
doi:10.1016/j.tate.2017.02.004
- Schiefele, U., & Schaffner, E. (2015). Teacher interests, mastery goals, and self-efficacy as predictors of instructional practices and student motivation. *Contemporary Educational Psychology*, 42, 159-171.
doi:10.1016/j.cedpsych.2015.06.005
- Seniwoliba, A. J. (2013). Teacher motivation and job satisfaction in senior high schools in the Tamale metropolis of Ghana. *Merit Research Journal of Education and Review*, 1(9), 181-196.
- Sharma, P., Nagar, P., & Pathak, S. C. (2012). Impact of transformational leadership on creative flexibility of engineers in India. *Procedia - Social and Behavioral Sciences*, 57, 555 – 559.
doi:10.1016/j.sbspro.2012.09.1224
- Shen , B., McCaughtry, N., Martin, J., Garn, A., Kulik, N., & Fahlman, M. (2015). The relationship between teacher burnout and student motivation. *British Journal of Educational Psychology*, 519-532.
- Soenens, B., Sierens, E., Vansteenkiste, M., Dochy, F., & Goossens, L. (2012). Psychologically controlling teaching: Examining outcomes, antecedents, and mediators. *Journal of Educational Psychology*, 104(1), 108-120. doi:10.1037/a0025742
- Sun, J. (2004). Understanding the impact of perceived principal leadership style on teacher commitment. *International Studies in Educational Administration*, 32(2), 18-31.
- Taştan, S. B., Davoudi, S. M., Masalimova, A. R., Bersanov, A. S., Kurbanov, R. A., Boiarchuk, A. V., & Pavlushin, A. A. (2018). The impacts of teacher's efficacy and motivation on student's academic achievement in science education among secondary and high school students. *Journal of Mathematics, Science and Technology Education*, 14(6), 2353-2366.
doi:10.29333/ejmste/89579
- Tella, A. (2008). Teacher Variables As Predictors of Academic Achievement of Primary School Pupils Mathematics. *International Electronic Journal of Elementary Education*, 17-33.
- Thoonen, E. E., Slegers, P. J., Oort, F. J., Peetsma, T. T., & Geijsel, F. P. (2011). How to improve teaching practices : The role of teacher motivation, organizational factors, and leadership practices. *Educational Administration Quarterly*, 47(3), 496–536.
doi:10.1177/0013161X11400185
- Ustun, U. D. (2018). Transformational leadership behaviors of high school students' according to leisure preferences and participation type. *World Journal of Education*, 8(4), 18-23. doi:10.5430/wje.v8n4p18
- Valiente, C., Julia , P. H., Swanson, J., Bradley, R. H., & Groh, M. (2019). Early elementary student-teacher relationship trajectories predict girls'

- math and boys' reading achievement. *Early Childhood Research Quarterly*, 49(4), 109–121. doi:10.1016/j.ecresq.2019.05.001
- Wamitu, S. N. (2018). Motivational strategies for teacher attraction and retention in Nyeri County, Kenya. *The International Journal of Business Management and Technology*, 2(1), 16-25.
- Wenjuana, G., Ling, L. K., & Jun, W. (2019). Teacher feedback and students' self-regulated learning in mathematics: A comparison between a high-achieving and a low-achieving secondary schools. *Studies in Educational Evaluation*, 63, 48-58. doi:10.1016/j.stueduc.2019.07.001
- Williams, C. G. (2011). Distributed leadership in South African schools: Possibilities and constraints. *South African Journal of Education*, 31(2), 190-200.
- Williams, W. E. (2018). *Principal leadership style, teacher motivation, and teacher retention*. Minneapolis, Minnesota: Walden University.
- Yang, Y. (2014). Principals' transformational leadership in school improvement. *Journal of Academic Administration in Higher Education*, 28(3), 77-83. doi:10.1108/IJEM-04-2013-0063
- Yu, R., & Singh, K. (2016). Teacher support, instructional practices, student motivation, and mathematics achievement in high school. *The Journal of Education Research*, 111(1), 81-94. doi:10.1080/00220671.2016.1204260
- Zahay, D., & Kumar, A. (2017). Motivation and active learning to improve student performance: An extended abstract. In M. Stieler (Ed.), *Academy of Marketing Science* (pp. 1-5). Germany: Springer, Cham. doi:10.1007/978-3-319-45596-9



© 2020 Adarkwah, & Zeyuan; licensee International Journal of Educational Excellence, Universidad Ana G. Méndez (UAGM). This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly credited.

Studying the Equivalence of Two Language Versions of a Large Scale Assessment: A Comparison of Test Takers in United States and Puerto Rico

Jorge Carvajal Espinoza ^a, & John Poggio ^b

Received: 1 October 2020 • Accepted: 7 November 2020

Abstract: This study collected evidence regarding the equivalence of items across language forms by applying DIF methodologies to both the cognitive and affective domains of a large scale assessment and explored the utility of the Liu-Agresti estimator of the cumulative common odds ratio for identifying polytomous DIF. The illustrated use of the Liu-Agresti estimator appears to be promising to the understanding of the phenomenon of polytomous DIF. Although the differential functioning of the polytomous items identified as large DIF could not be accounted for based on translation, it does not follow that there are not other causes for the apparent differential functioning. In particular, since these items tap into affect, behavior and attitudes, it could be cultural differences or impact that account for such differences.

Key-words: test takers; assessment; second-language test adaptation; translation DIF; Liu-Agresti estimator; large scale assessment.

1. Introduction

One approach to studying measurement equivalence is differential item functioning. As several states (Texas, California, Kansas and others) move to developing Spanish language assessments due to the increasing Latino/Hispanic population, assessing the equivalence and validity of second-language assessments are important considerations within large scale testing programs. Not only should the meaning of a test be consistent across persons

^a Universidad de Costa Rica (UCR), Costa Rica.  ORCID 0000-0003-0204-4894. ^b University of Kansas, United States.  ORCID 0000-0001-9432-4871. Correspondence: Jorge Carvajal Espinoza, Ciudad Universitaria Rodrigo Facio Brenes, San José, San Pedro, Costa Rica. carvajalespinoza@ucr.ac.cr

within a cultural group, that meaning must be consistent across cultural groups (Van de Vijver and Poortinga, 1997). Second-language test adaptation presents challenges in certain domains. For example, in mathematics, the construct of interest may be focused on computation skills and the purpose of the test is to look for a demonstration of those skills. For this domain, the language in which the performance is assessed may be of little or no interest (Hambleton and Patsula, 1999). However, desired inferences in other content domains (science, for example) present questions pertaining to equivalence.

When a test is translated, equivalence of items across language forms is a critical issue to be considered (Price, 1998). The Differential Item Functioning (DIF) methodology is a family of techniques commonly used as a means to evaluate this equivalence (Sireci and Khaliq, 2002; Emenogu and Childs, 2003; Ulterwijk and Vallen, 2003; Sireci, Fitzgerald and Xing, 1998; Gierl, Rogers and Klinger, 1999; Robin, Sireci and Hambleton, 2003). Items function differently (DIF is said to exist) when test-takers of equal ability differ substantially, on average, according to their group membership in their responses to a given item (AERA, APA, NCME, 2014). Since item-level DIF may not manifest itself in scale-level analyses (Zumbo, 2003) it is important and primary to carry out analyses of equivalence at the item level.

The psychometric literature pertaining to equivalence across language forms beyond the cognitive domain (i.e., affective) is lacking. As an increasing number of educational, credentialing, and psychological tests are being adapted for use in other languages, a treatment of equivalence across different language forms within both the cognitive (tests of maximum performance) and affective (tests of typical behavior) domains in the context of a large scale assessment system is needed.

The purpose of the present study is twofold: to collect evidence regarding the equivalence of items across language forms by applying DIF methodologies to both the cognitive and affective domains of a large scale assessment as well as to explore the utility of the Liu-Agresti estimator of the of the cumulative common odds ratio (Liu and Agresti, 1996) for identifying polytomous DIF. The use of this estimator for polytomous DIF analysis was proposed by Penfield and Algina (2003). This estimator has not been employed to analyze polytomous DIF in the affective domain and it has only been applied to real data in a test of dichotomous and polytomous cognitive items by Penfield and Camilli (2007).

In addressing these purposes, a traditional Mantel Haenszel (MH) analysis is employed for one sample of cognitive, dichotomous items while for the affective, polytomous items the Liu-Agresti approach is applied across different samples and compared with the Logistic Discriminant Function Analysis (LDFA) and the Mantel for DIF detection procedures. A classification of polytomous DIF items using the Liu-Agresti estimator, which

is comparable to the ETS DIF classification scheme for the dichotomous case, is also explored.

The vehicle for the current analysis is a large scale assessment measuring cognitive achievement for planned instructional objectives and related specific affective outcomes associated with those objectives. As an integrated assessment tool, this test provides knowledge questions (cognitive domain) and questions related to beliefs, attitudes, practices, and perceptions (affective domain). As a multilevel, age appropriate tool, this test is used in grade 5 (Level 1); grades 8 or 9 (Level 2); and grades 11 or 12 (Level 3). The present study evaluates the equivalence of the Level 2 Spanish version of the test.

The Spanish version of this form was made available for the first time in the year 2005 for the target population of English Language Learner students (EL) in the US whose native language is Spanish. As this was the first year this form was available, relatively few ELL students took this version in the 2005 administration. Nonetheless, 61 native Spanish speaking 8th grade students in Puerto Rico that took the Spanish version in 2005 were identified. This group represents the focal group in this study. Approximately 66,000 8th graders took the English version of the test in the US in 2005 and various samples from this population constitute the reference groups.

Although DIF studies based on small sample sizes can be problematic (Fidalgo, Ferreres, and Muñiz, 2004) it is not an uncommon situation for testing settings to encounter such small samples: "... state boards, certification and licensure agencies, and others, often make contractual requirements for DIF analysis, regardless of the statistical appropriateness of the sample size" (Parshall and Miller, 1995, p. 314). In the current study, the high reliability of scores from the analyzed test as well as the thick matching scheme used are factors that somewhat mitigate problems inherent to small samples. (Zwick, Thayer and Mazzeo, 1997; Donoghue and Allen, 1993; Clauser, Mazor and Hambleton, 1994)

2. Description of DIF procedures used in the study

2.1. Mantel Haenszel

The Mantel Haenszel (MH) procedure for detecting DIF in dichotomous items is widely used, including in situations where sample sizes are small. We denote the MH estimator of the common odds ratio by $\hat{\alpha}_{MH}$ and its logarithm by $\log \hat{\alpha}_{MH}$ (log odds ratio estimator). The MH log odds ratio in delta metric (Dorans and Holland, 1993) is denoted by MH D-DIF. The ETS classification flags dichotomous DIF items as Type C (large DIF) when $|\text{MH D - DIF}|$ is greater than 1.5 and statistically greater than 1 (Dorans &

Holland, 1993). Because $MH\ D-DIF = -2.35 \left| \log \hat{\alpha}_{MH} \right|$, this classification is equivalent to saying that a DIF item is classified as Type C if $\left| \log \hat{\alpha}_{MH} \right|$ is greater than 0.64 and statistically greater than 0.43. In the current study, dichotomous Type C items are identified and they are considered for judgmental review.

2.2. Mantel for polytomous items

The Mantel for polytomous items is a generalization of MH for the dichotomous case (Zwick, Donoghue, and Grima, 1993). There is a chi-square test with 1 degree of freedom associated with this procedure. If the null hypothesis is rejected, the item is identified as evidencing DIF (Wang and Su, 2004). This approach takes into account the ordinal nature of categorical responses of polytomous items, making its application appropriate for the current study.

2.3. Logistic Discriminant Function Analysis (LDFA)

LDFA is a variation of logistic regression procedures proposed for polytomous DIF analysis by Miller and Spray (1993). Under this technique (Su and Wang, 2005)

$$\ln \left| \frac{P(G = 1)}{P(G = 0)} \right| = \alpha_0 + \alpha_1 X + \alpha_2 U + \alpha_3 XU$$

where U is the item score, G is the group indicator and X is the conditional total score. Under this framework (Kristjansson, Aylesworth, and McDowell, 2005), three equations are derived: an equation predicting group membership from X (model 1), an equation predicting group membership from X and U (model 2), and the equation shown above predicting group membership from X, U, and their interaction (model 3). Based on the computation of a likelihood ratio goodness-of-fit statistic G^2 , a significant result in the comparison between G^2 in model 3 and model 2 is evidence of the existence of non uniform DIF (a statistically significant interaction exists), whereas only a significant result in the comparison of G^2 between model 2 and model 1 is evidence of the presence of uniform DIF (i.e., no significant interaction).

2.4. The Liu-Agresti Estimator

This is an estimator of the common odds ratio across response categories of an ordinal response variable (Liu and Agresti, 1996). Penfield and Algina (2003) present the various formulas for this estimator ($\hat{\alpha}_{LA}$) as well as its properties, which are summarized below.

$\hat{\alpha}_{LA}$ is a generalization of $\hat{\alpha}_{MH}$, when the number of category responses is 2, $\hat{\alpha}_{LA}$ reduces to $\hat{\alpha}_{MH}$. Similarly to $\log \hat{\alpha}_{MH}$, $\log \hat{\alpha}_{LA} = 0$ suggests no DIF is present, $\log \hat{\alpha}_{LA} > 0$ suggests DIF in favor of the reference group and $\log \hat{\alpha}_{LA} < 0$ suggests DIF in favor of the focal group.

The formula for $Var \log \hat{\alpha}_{LA}$ can be also found in the Penfield and Algina (2003) paper. These researchers state that since the common log odds ratio are asymptotically normally distributed, the statistic

$$z_{LA} = \frac{\log \hat{\alpha}_{LA} - C}{\sqrt{Var \log \hat{\alpha}_{LA}}}$$

can be used to test directional and nondirectional hypotheses concerning the value of the population cumulative common odds ratio, where C is a constant.

Penfield and Algina (2003) discuss the advantages of $\hat{\alpha}_{LA}$ over other statistics for detecting DIF in polytomous items. The similarity of $\hat{\alpha}_{LA}$ to $\hat{\alpha}_{MH}$ permits $\hat{\alpha}_{LA}$ to be used in approaches to DIF detection in polytomous items in a manner analogous to $\hat{\alpha}_{MH}$ in the dichotomous case; for example, using a combination of the magnitude of $\hat{\alpha}_{LA}$ along with the proper value of z_{LA} to assess degrees of DIF in similar manner to the ETS dichotomous item classification scheme. According to these researchers, other possible applications include Bayesian approaches to investigate the probability that the polytomous items have varying levels of DIF and examining the presence of differential test functioning in tests comprised of polytomous items.

3. Method

For the translation of the test, two translators independently conducted a translation into Spanish. Following that procedure, a consensual validation of the translation was performed. A third translator then compared the English and consensual versions and offered edits and suggestions. The original two translators then prepared a unified version based upon those suggestions. Two Spanish native speakers who are experts in substantive field measured by the test reviewed the unified version and made final suggestions for editing and revisions. Their observations were incorporated and the final version was produced.

The Level 2 of this test consists of two parts. The first part contains 57 cognitive items that assorted cognitive knowledge. The assessment second part (affective) contains 46 questions the first 33 of which are 4-response category Likert items measuring various attitudes, thoughts, beliefs, and values directly related to and derived from the knowledge objectives measured by Part 1 cognitive knowledge of the test. The remaining 13 items measure perceptions of how frequently certain situations occur at school. As the two parts of the test measure distinct cognitive and affective components, a single total composite score was of no interest in the current study.

For the polytomous analysis, only the section 1 of 33 affective items were considered. The 13 perception and documentation items were not included for analyses as this collection of survey questions taps the perceived frequency of certain events and behaviors rather than an individual's attitudes or beliefs, clearly a different construct. Beyond relevance, given our small sample, it further would not be prudent to analyze the 13 perception items separately as it has been shown that short tests produce greater instability in DIF analyses.

Accordingly, the Part 1 cognitive matching variable (total score) for the dichotomous case ranges 0 to 57 and the matching variable for the polytomous analysis ranges 0 to 99 as each item was coded 0 to 3.

The focal group consisting of 61 Puerto Rican 8th grade students remained constant across all replications of the study in the dichotomous and polytomous analyses. The various samples used for the reference group were all randomly selected from the population of about 66,000 US 8th grade students who completed the English language test form.

For the dichotomous (cognitive) study, a sample of 348 US students was selected at random. For the polytomous (affective) study, samples of 350, 500, 1000 and 1500 were drawn to evaluate the behavior of $\hat{\alpha}_{LA}$ under varying sample sizes and to compare these results with the MH and LDFA analyses.

DIF analyses, except those corresponding to LDFA, were conducted using the DIFAS 2.0 software (Penfield, 2005). For the dichotomous case, DIFAS provides a classification based on the ETS scheme (type A, B, and C). For the polytomous analysis DIFAS 2.0 provides the Mantel test statistic, $\log \hat{\alpha}_{LA}$, and $Var \log \hat{\alpha}_{LA}$. LDFA analyses were conducted in SPSS. All statistical tests were evaluated at $\alpha = .05$.

A particularly important decision in the current study regarding the analysis should be noted. The DIFAS 2.0 software package allows the user to choose the size of the interval (stratum) for which the statistics are computed. By default, the interval size is set at one. Thus, for example in the dichotomous case there would be by default 58 intervals given that the section contains 57 items. If intervals are set too wide, the impact of the test

(difference in total score between the focal and reference group) could be a confounding of the DIF statistics. In the extreme case that only one interval exists for the whole test there would be a complete confounding. We used thick matching (Donoghue and Allen, 1993; Clauser et al., 1994), in an attempt to mitigate sparseness of data in the focal group, employing a reasonable size for the intervals of five (5). This decision was verified by doing the following: In the dichotomous case whereby logistic regression can be used for DIF analysis (Swaminathan and Rogers, 1990), under non uniform DIF in the model

$$\ln \left| \frac{P(U=1)}{P(U=0)} \right| = \beta_0 + \beta_1 X + \beta_2 G$$

where U is the item score, X is the conditional total score and G is the group with $G=0$ focal and $G=1$ reference, the value of β_2 should be close to that of the $\log \hat{\alpha}_{MH}$ (Penfield & Camilli, in press). Several samples were extracted for the purpose of comparing the difference between these two values when using intervals of size one (1) versus using intervals of size five (5). In this evaluation, not only was the mean of the difference closer to zero in the size five scenario, but the SD of the difference decreased in this case (for example, the mean changed from .029 for size one to .013 for size five; the SD decreased from .116 to .073 respectively), an indication that the estimation of $\log \hat{\alpha}_{MH}$ is at least as precise for the interval five case for our data. Thus grouping error was not an issue in this study.

For the same purpose of mitigating sparseness of data in the focal group, interval size five was used for the polytomous DIF analysis in DIFAS 2.0.

To date, no classification rule to assess the severity of DIF has been proposed in the literature using $\hat{\alpha}_{LA}$ for polytomous items. Penfield (personal communication, 2010) suggests that items exhibiting DIF can be identified using $\hat{\alpha}_{LA}$ and its properties by the combined criterion: $|\log \hat{\alpha}_{LA}|$ greater than about 0.6 and $\log \alpha_{LA}$ significantly different than zero. This combined criterion is similar to the ETS classification rule for dichotomous items and would include what in the dichotomous case are type B and C items without differentiating among them. Since the methodological decision was made for this study that only type C items in the dichotomous case would be identified and selected for judgmental analysis (i.e. items that exhibit greater DIF) a similar methodological decision was made for the polytomous case. Therefore, the decision was made to identify polytomous items as large DIF items if $|\log \hat{\alpha}_{LA}|$ is greater than 0.64 and $|\log \alpha_{LA}|$ is statistically greater

than 0.43 in an analogy to the dichotomous case under the ETS classification. We will refer to these items as polytomous Type C items. Of interest in the current study is whether polytomous Type C items flagged by this criterion are also flagged as DIF items by the Mantel or LDFA approaches in order to collect evidence about the validity of such classification.

The logical review judgmental analysis of the Type C items (dichotomous and polytomous) was conducted with a panel of 3 bilingual native Spanish speakers, one of them a Puerto Rican. In addition, a teacher of the Puerto Rican examinees provided feedback, input and reaction regarding potential reasons for differential functioning of the type C items.

4. Results

4.1. Part A: Cognitive Dichotomous Scored Items

Part 1 Descriptive Statistics

Group	Subjects	Mean Score*	Score SD	Items mean	Alpha
PR	61	35.2	8.9	0.62	0.88
US	348	41.6	9.3	0.73	0.91
Total score: 57					

Table 1. Descriptive Statistics (I)

Table 1 shows the mean for the Puerto Rican (Spanish version of the test) and US (English version) student samples for the cognitive test. The mean for the Spanish version is 35.2 while the mean on the English version is 41.6, with standard deviations of 8.9 and 9.3, respectively. The mean total score for the US group is 0.66 of a pooled SD higher than the mean total score for the Puerto Rican students, not an uncommon result in studies of this nature.

Table 1 also shows that mean item difficulty for US students is .73. In the Puerto Rican sample, the mean item difficulty is .62. Reliability coefficients as indexed by Cronbach's Alpha for the US and PR samples are .91 and .88, respectively.

Based on the results, 5 items were flagged as exhibiting large DIF (Type C): item 7, 13, 14, 24, and 47. Four of the 5 items favored the US student group. Item 13 favored the Puerto Rican student group. A judgmental analysis of these five items was conducted. In four of these items some translation issues were identified that might account for their apparent differential functioning. Because these items are operational and thus secure, in order to maintain the security of the test we do not report the full judgmental analysis.

4.2. Part B: Polytomous Affective Items

Part 2 Descriptive Statistics

Group	Subjects	Mean Score*	Score SD	Items mean**	Alpha
PR	61	65	12.8	1.97	0.88
US 350	350	68.7	13.1	2.08	0.91
US 500	500	67.9	12.3	2.06	0.9
US 1000	1000	67.6	12.8	2.05	0.91
US 1500	1500	67.8	12.6	2.05	0.91

*Total score: 99

**Items coded 0 to3

Table 2. Descriptive Statistics (II)

Table 2 shows that the mean score for the Puerto Rican group of students is 65.0 whereas the mean score for the four samples of US students ranges from 67.6 to 68.7. The score SD for the PR students is 12.8. The SDs of the US samples range from 12.3 to 13.1. The difference between the mean score of the Puerto Rican students and the 4US samples ranges from 0.20 to 0.28 of a SD (pooled for each sample). It is evident that for the polytomous case there is less of a difference between total score means between Puerto Rican and US students than in the case of the dichotomous cognitive maximum performance items.

Table 2 also shows the reliability coefficients. For the Puerto Rican sample the reliability is .88 whereas the reliability coefficient for the 4 US samples is .90 for the second sample and 0.91 for the other three. Additionally, Table 2 provides the item means for the different samples: 1.97 for the Puerto Rican group and between 2.05 and 2.08 for the US samples.

DIF results are presented in Table 3 for the three methods across the four different samples. The items classified as large DIF (Type C) in at least one of the samples using the implemented criterion for the Liu-Agresti estimator are included in this table.

Four items were classified as Type C across the four samples: items 4, 11, 15 and 33. Item 22 was classified as Type C in all samples except the 350-61 sample comparison. Item 9 was classified as Type C in two of the samples while being “borderline” in the others. In this particular case, it means that whereas $|\log \hat{\alpha}_{LA}|$ is greater than 0.64, statistical significance for $|\log \alpha_{LA}|$ greater than 0.43 in these two samples was not attained, the correspondent test statistics being close to the critical value. For items 4, 9, 11, 15, 22 and 33 there is a high degree of classification consistency despite the fact that the 4 sample sizes are distinct. On the other hand, item 19 was flagged in only one

of the samples (350-61). This rate of flagging questions for DIF using .05 as the trigger, suggests a frequency of occasions nearing a chance Type 1 error rate. No other items among the 33 polytomous items were flagged as Type C in any sample, which also provides evidence about the consistency of the Liu-Agresti estimator across samples.

Polytomous DIF Items

Item	Sample 350-61	Sample 500-61	Sample 1000-61	Sample 1500-61
Liu-A	***	***	***	***
4 Log odds ratio Lui-A	1.109	1.022	0.902	0.854
Mantel	*	*	*	*
L DFA		*	*	*
Liu-A	***	borderline	***	borderline
9 Log odds ratio Lui-A	-0.998	-0.871	-0.9	-0.843
Mantel	*	*	*	*
L DFA		*	*	*
Liu-A	***	***	***	***
11 Log odds ratio Lui-A	1.476	1.402	1.327	1.505
Mantel	*	*	*	*
L DFA		*	*	*
Liu-A	***	***	***	***
15 Log odds ratio Lui-A	1.081	1.391	1.313	1.371
Mantel	*	*	*	*
L DFA		*	*	*
Liu-A	***	***	***	***
19 Log odds ratio Lui-A	-1.021	-0.799	-0.782	-0.785
Mantel	*	*	*	*
L DFA	*	*	*	*
Liu-A	***	***	***	***
22 Log odds ratio Lui-A	-0.937	-1.041	-1.034	-0.996
Mantel	*	*	*	*
L DFA		*	*	*
Liu-A	***	***	***	***
33 Log odds ratio Lui-A	-1.606	-1.696	-1.491	-1.586
Mantel	*	*	*	*
L DFA	*	*	*	*

*** Type C (Large DIF item)

* DIF item

Table 3. Polytomous DIF Items

Table 3 also presents the cumulative log odds ratio estimator ($\log \hat{\alpha}_{LA}$), which is a measure of effect size. It should be noted that $\log \hat{\alpha}_{LA}$ appears to be rather stable across samples, except for item 19. The sign of $\log \hat{\alpha}_{LA}$ on the table denotes the direction of the DIF. Thus, items 4, 11, and 15 show higher endorsement for students in the reference group whereas items 9, 19, 22, and 33 show higher endorsement for students in the focal group, after controlling for the construct measured by the affective items.

Further, Table 3 indicates if items classified as Type C were also flagged as DIF items by the Mantel or the LDFA procedures. Note that any item classified as Type C was also flagged as DIF item by the Mantel procedure.

For the LDFA, a similar situation occurs in the three largest samples: all Type C items are also flagged by LDFA. The condition is different for LDFA with the 350-61 sample. In this case LDFA flagged only 2 of the 6 Type C items identified in this sample. It might be that LDFA does not have enough power for smaller samples.

The seven Type C items (4, 9, 11, 19, 15, 22 and 33) were reviewed by the panel for the purpose of a judgmental analysis. Contrary to the dichotomous (cognitive) case, no compelling evidence was uncovered regarding there being an issue with the translation. If in fact these items do exhibit large DIF (as opposed to the cause being Type I error), it would appear that the basis of the differential functioning is not related to the way the translation was made.

5. Discussion

With the increasing Latino/Hispanic population sitting for assessments in the US as well as the increasing use of translated tests, it is important to collect evidence of equivalence across languages. Understanding possible causes of differential item functioning is one of the advantages of carrying out translation DIF studies. In the current study it was possible to identify possible translation issues for four of the five large DIF items in the dichotomous case. This situation illustrates the importance of conducting such studies.

Traditionally, studies such as this have explored and examined DIF in the context of cognitive (dichotomous, i.e., right-wrong) assessment. DIF, in the context of polytomous assessment, has not received the same treatment in the literature. In addition to a traditional dichotomous analysis, this study explored DIF detection in polytomous items by employing an odds ratio estimator, the Liu-Agresti, which has not been reported in the literature for affective questions and that has only once applied to a real data set (Penfield

and Camilli, 2007). Penfield and Algina (2003) offer that one of the possible advantages of this estimator is the implementation of a classification rule similar to the ETS classification that uses the MH for dichotomous items. An example of such a classification for polytomous items was implemented and illustrated in this study and compared with two more procedures, the Mantel and the LDFA for polytomous items. The behavior of the Liu –Agresti estimator across different sample sizes was also studied. When an item was classified as showing large DIF (Type C) by the criterion implemented in this study, it was also flagged as a DIF item by the Mantel and the LDFA (with the exception of a smaller sample for this latter method). However the opposite is not true. Though not reported in detail here, several items that were flagged by MH or LDFA were not classified as Type C items. It was also noted that $\log \hat{\alpha}_{LA}$, an effect size, appears to be rather stable across different combinations of sample sizes, as extreme as 61 for the focal and 1500 for the reference group. This is of particular importance because frequently in testing situations the sizes of the samples for focal groups can be rather low.

One cannot be certain that the items identified as Type C are in fact items with large DIF or whether they witness the occasion of and have been subject to Type I errors. However, that most of the items were consistently identified across different samples of different sizes and that they were mostly flagged by the other 2 procedures some evidence of a correct identification. Further treatment, possibly in the form of simulation studies, is needed to study more in-depth the behavior of this estimator.

Although the differential functioning of the polytomous items identified as Type C could not be accounted for on the basis of translation, it does not follow that there are not other causes for the apparent differential functioning. In particular, since these items tap into affect, behavior and attitudes, it could be cultural differences or impact that account for such differences. This is an area for further research.

From a methodological perspective, the illustrated use of the Liu-Agresti estimator appears to be promising and future research that focuses on the performance of this estimator not only in the direction of classification schemes but in other applications will help clarify the contribution of this estimator to the understanding of the phenomenon of polytomous DIF.

References

- AERA, APA, & NCME. (2014). *Standards for Educational and Psychological Testing*. Washington, DC: American Educational Research Association.
- Allalouf, A. (2003). Revising translated differential item functioning items as a tool for improving cross-lingual assessment. *Applied Measurement in Education*, 16, 55-73. doi: 10.1207/S15324818AME1601_3

- Allalouf, A., Hambleton, R., & Sireci, S. (1999). Identifying the causes of DIF in translated verbal items. *Journal of Educational Measurement*, 36, 185-198. doi: 10.1111/j.1745-3984.1999.tb00553.x
- Clauser, B. Mazor, K., & Hambleton, R. (1994). The effects of score group width on the Mantel-Haenszel Procedure. *Journal of Educational Measurement*, 31, 67-68.
- Clauser, B., & Mazor, K. (1998) Using statistical procedures to identify differentially functioning test items. *Educational Measurement: Issues and Practice*, 17, 31-44.
- Donoghue, J. R., & Allen, N. (1993). Thin versus thick matching in the Mantel Haenszel Procedure for Detecting DIF. *Journal of Educational Statistics*, 18, 131-154. doi: 10.2307/1165084
- Dorans, N. J., & Holland, P. W. (1993). DIF detection and description: Mantel-Haenszel and standardization. In P.W. Holland and H. Wainer (Eds.), *Differential item Functioning* (pp.35-66). Hillsdale, NJ: Lawrence Erlbaum.
- Duncan, T., Parent, L., Chen, L., Ferrara, S., & Johnson, E. (2002). *Study of a Dual Language Test Booklet in 8th grade Mathematics*. Paper presented at the meeting of the American Educational Research Association, New Orleans, LA.
- Ercikan, K. (2002). Disentangling sources of differential item functioning in multilanguage assessments. *International Journal of Testing*, 2, 199-215. doi: 10.1080/15305058.2002.9669493
- Emenogu, B., & Childs, R. (2003). *Curriculum and Translation Differential item Functioning: A Comparison of Two DIF Detection Techniques*. Paper presented at the meeting of the National Council on Measurement in Education, Chicago, IL.
- Fidalgo, A. M., Ferreres, D., & Muñiz, J. (2004). Utility of the Mantel-Haenszel procedure for detecting differential item functioning in small samples. *Educational and Psychological Measurement*, 64, 925-936. doi: 10.1177/0013164404267288
- Gierl, M., Rogers, T., & Klinger, D. (1999). Using statistical and judgmental reviews to identify and interpret translation differential item functioning. *Alberta Journal of Educational Research*, 45, 353-376.
- Hambleton, R.K., & Patsula, L. (1999). Increasing the validity of adapted tests: Myths to be avoided and guidelines for improving test adaptation practices. *Journal of Applied Testing Technology*, 1(1), 1-30
- Hambleton, R., & Patsula, L. (2000). *Adapting Tests for use in Multiple languages and Cultures*. (Laboratory of Psychometric and Evaluative Research, Report No. 304). Amherst: University of Massachusetts, School of Education.
- Holland, P., & Wainer, H. (Eds.). (1993). *Differential item Functioning*. Hillsdale, NJ: Erlbaum Publishers.

- Kristjansson, E., Aylesworth, R., & McDowell, I. A comparison of four methods for detecting differential item functioning in ordered response items. *Educational and Psychological Measurement*, 65, 935-953. doi: 10.1177/0013164405275668
- Liu, I-M, & Agresti, A. (1996). Mantel-Haenszel-type inference for cumulative odds ratios with a stratified ordinal response. *Biometrics*, 52, 1223-1234.
- Kim, M. (2001). Detecting DIF across the different language groups in a speaking test. *Language Testing*, 18, 89-114. doi: 10.1177/026553220101800104
- Parshall, C.G., & Miller, T.R. (1995). Exact versus asymptotic Mantel-Haenszel DIF statistics: A comparison of the performance under small-sample conditions. *Journal of Educational Measurement*, 32, 302-316.
- Penfield, R. D. (2010). *Personal Communication*. doi: 10.1111/j.1745-3984.1995.tb00469.x
- Penfield, R. D. (2005). Differential Item Functioning Analysis System. *Applied Psychological Measurement*, 29, 150-151. doi: 10.1177/0146621603260686
- Penfield, R. D. & Camilli, G. (2007). Differential item functioning and item bias. In S. Sinharay & C. R. Rao (Eds.), *Handbook of Statistics, Volume 26: Psychometrics* (pp.125-167). New York: Elsevier..
- Penfield, R. D. & Algina, J. (2003). Applying the Liu-Agresti estimator of the cumulative common odds ratio to DIF detection in polytomous items. *Journal of Educational Measurement*, 40, 343-370. doi: 10.1111/j.1745-3984.2003.tb01151.x
- Price, L. (1999). *Differential Functioning of Items and Tests Versus the Mantel-Haenszel Technique for Detecting Differential item Functioning in a Translated test*. Paper presented at the meeting of the American Alliance of Health, Physical Education, Recreation, and Dance, Boston, MA.
- Price, L., & Oshima, T. (1998). *Differential Item Functioning and Language Translation: A Cross-National Study with a Test Developed for Certification*. Paper presented at the meeting of the American Educational Research Association, San Diego, CA.
- Miller, T., & Spray, J. (1993). Logistic Discriminant Function Analysis for DIF Identification of Polytomously Scored Items. *Journal of Educational Measurement*, 30, 107-122.
- Muñiz, J., & Hambleton, R. (2001). Small sample studies to detect flaws in item translations. *International Journal of Testing*, 1, 115-135. doi: 10.1207/S15327574IJT0102_2

- Robin, F., Sireci, S., & Hambleton, R. (2003). Evaluating the equivalence of different language versions of a credentialing exam. *International Journal of Testing*, 3, 1-20. doi:10.1207/S15327574IJT0301_1
- Sireci, S., & Khaliq, S. (2002). *An Analysis of the Psychometric Properties of Dual Language Test Forms*. (Center for Educational Assessment, Report No. 458). Amherst: University of Massachusetts, School of Education.
- Sireci, S., Fitzgerald, C., & Xing, D. (1998). *Adapting Credentialing Examinations for International Uses*. Paper presented at the meeting of the American Educational Research Association, San Diego, CA.
- Swaminathan, H. & Rogers, J. (1990). Detecting differential item functioning using logistic regression procedures. *Journal of Educational Measurement*, 27, 361-370.
- Su, Y., & Wang, W. (2005). Efficiency of the Mantel, Generalized Mantel-Haenszel, and Logistic Discriminant Function Analysis methods in detecting differential item functioning for polytomous items. *Applied Measurement in Education*, 18, 313-350. doi: 10.1207/s15324818ame1804_1
- Ulterwijk, H., & Vallen, T. (2003). Test bias and differential item functioning: a study of the suitability of the CITO primary education final test for second generation immigrant students in the Netherlands. *Studies in Educational Evaluation*, 29, 129-143.
- Van de Vijver, F. J. R., & Poortinga, Y. H. (1997). Towards an integrated analysis of bias in cross-cultural assessment. *European Journal of Psychological Assessment*, 13, 29-37.
- Wang, W. & Su, Y. (2004). Factors influencing the Mantel and Generalized Mantel-Haenszel methods for the assessment of differential item functioning in Polytomous items. *Applied Psychological Measurement*, 28, 450-480. doi: 10.1177/0146621604269792
- Zenisky, A., Hambleton, R., & Robin, F. (2003). Detection of differential item functioning in large-scale state assessments: a study evaluating a two-stage approach. *Educational and Psychological Measurement*, 63, 51-64.
- Zumbo, B. (2003). Does item-level DIF manifest itself in scale-level analyses? Implications for translating language tests. *Language Testing* 20, 136-147. doi: 10.1191/0265532203lt248oa
- Zwick, R., Thayer, D. & Mazzeo, J. (1997). *Describing and Categorizing DIF in Polytomous Items*. ETS Research Report 97-05.
- Zwick, R., Donoghue, J. & Grima, A. (1993). Assessment of differential item functioning for performance tasks. *Journal of Educational Measurement*, 30, 233-251.



© 2020 Carvajal Espinoza & Poggio; licensee International Journal of Educational Excellence, Universidad Ana G. Méndez (UAGM). This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly credited.

Philosophy of Educational Research: New Epistemological, Methodological and Historical Approach

Omar A. Ponce ^a, Nellie Pagán-Maldonado ^a, & José Gómez Galán ^b

Received: 10 September 2020 • Accepted: 19 November 2020

Abstract: The philosophy of educational research has traditionally been one of the least studied fields in the epistemology of the social sciences and humanities. However, a philosophical reflection on education itself, in the search for an ultimate explanation of what it means in the field of human evolution, necessarily implies knowing how to obtain information for its knowledge. This, in an epistemological context, implies analyzing the research methods used in the educational sciences. Throughout its history, educational research has experienced three stages of methodological evolution in its search for scientific effectiveness: (a) research without adhering to a particular model, (b) research applied to practice, and (c) research inserted into practice. The analysis of these methodological evolutions shows a history of great academic value, of fascinating philosophical debates, which every educator and educational researcher should know, and which nevertheless remains practically unexplored and unstudied in its entirety in the academic field.

Key-words: educational research; philosophy of education; epistemology; theory of education; methodology, history of education.

1. Introduction

There are many definitions of what educational research is (Hedges and Hanis-Martin, 2009; Condliffe and Shulman, 1999). The dominant position is to define it as "educational research. Educational research means investigating

^a Ana G. Méndez University (Puerto Rico-United States), Cupey Campus ^b Ana G. Méndez University (Puerto Rico-United States), Cupey Campus, & University of Extremadura (Spain)
 ORCID 0000-0002-9417-8824. Correspondence: Omar A. Ponce, Escuela de Educación, Universidad Ana G. Méndez (Recinto de Cupey) Avenida Ana G. Mendez, San Juan, 00926, Puerto Rico. um_ponce@uagm.edu

educational practices, the effect of these practices on learning, and the study of educational problems (Johannigmeier & Richardson, 2008; McMillan, & Schumacher, 2005; Condliffe & Schulman, 1999; Segovia, 1997; Charles, 1988; Cohen & Manion, 1980). The interest in educational research emerges at the beginning of the 20th century, with the emergence of public education worldwide and the desire to develop it scientifically (Walters, 2009; Johannigmeier and Richardson, 2008; Condliffe, 2000). The argument at that time, and which is still valid, was that scientific research could improve public education as had happened in other professions. The term educational research emerges to refer to public education research (Johannigmeier & Richardson, 2008; Shavelson & Towne, 2002; Condliffe, 2000; Cohen & Manion, 1980).

From its inception until the 1970s, educational research was considered a field of multidisciplinary studies and a social science (Koichiro, 2013). The term, "multidisciplinary field of studies," was used to imply that education was a field where knowledge from the natural and social sciences was applied. Educational research until the 1970s was research in history, psychology, sociology, and philosophy (Condliffe, 2000; Johannigmeier and Richardson, 2008; Walters, 2009; Green, 2010; Koichiro, 2013). Since then, educational research is a science that is being discussed in a field of knowledge between the natural sciences and humanist philosophies (Gil Cantero and Reyer, 2014; Ponce, Pagán-Maldonado and Gómez Galán, 2017 and 2018). This paper reviews the methodological developments in educational research. The analysis shows three stages of maturity, with a history of philosophical debates of great academic value that every educator and educational researcher should know.

2. Stage One: Educational research without a scientific research model

The problems of public education during the last phase of the industrial revolution aroused the interest of some universities to contribute to the improvement of education. Two strategies emerge from this interest: (a) The creation of Colleges of Education in the universities, with teachers of the Natural Sciences (mathematics and biology), the Social Sciences (psychology) and the Humanities (Languages, History, Philosophy, Art, Music), to train future teachers who would work in the public schools, and (b) Researching education and solving its problems. This confronted the early scholars with the challenge of identifying the model to be used in educational research. At the beginning of the 20th century, the dominant model of scientific research in universities was the experimental method of the Natural Sciences. In the Social Sciences, the Humanities and Philosophy there were research practices with different names, very particular to their disciplines, not all of them considered scientific methods, which were permeating educational research.

The academics in the first Colleges of Education in the universities did not develop a research model for education, but began their work with the research models of their respective academic disciplines (Condliffe, 2000; Johannigmeier and Richardson, 2008; Ponce, 2016).

Educational research began without a research model. The first and most controversial line of educational research was learning: what it is and how it happens. The first works came from philosophy, by the end of the 19th century. These works produced practical explanations about how learning occurred. The objective was that the classroom teacher had the tools to do his job effectively. In the United States, the first researchers of educational problems were physicians. They approached the study of education from a hygienic and child health perspective. Their approach used the doctor-patient model of medicine to examine what the teacher must know to educate his or her students. Psychologists used laboratory experiments to study student learning and mental processes. Sociologists developed field studies to understand the functioning of schools. Philosophers and humanists used the historical and philosophical study of society to propose statements to guide classroom practice.

By the 1900s, psychology, especially behaviorist psychology, as an "objective science" that studies mental functions and their structures, enjoyed greater acceptance than philosophical postulates in explaining learning problems. Laboratory experiments and quantification marked the scientific study of education in the topics of child development, human movement, hygiene and learning (Walters, 2009; Condliffe, 2000). Educational research at this time was a science of testing and statistical measurement of theories and attributes of learning, which resembled research in psychology (Walters, 2009). By the 1920s, it was evident that the term educational research encompassed many activities to study the problems of public education. In this decade it was evident that there were discrepancies among educational researchers about the scope of research methods, the academic disciplines studying education, and the need to define the type of science that is educational research (Johanningmeir & Richardson, 2008).

3. Second Stage: Research applied to practice

In the 1920s, the Vienna Circle triggered the revolution in social research in European universities. Influenced by the experimental research model of the natural sciences, this group of academics from the University of Vienna pointed out the little validity that philosophy and the humanities had as "sciences" because they lacked a "method" that would allow them to verify the authenticity of the assertions they made about the social world. The Vienna Circle presented the philosophy of social research called empirical

logic. It focused on the presence of a "scientific method" to corroborate any assertion of the authenticity of knowledge.

Experimental research was the most successful model in university scientific culture. Through this model, biology had a great impact on medicine, chemistry on agriculture and physics on engineering and technology. The findings of the natural sciences had several attractions for their applied professions, and that become aspirations in social research, their knowledge was generalizable and facilitated the prediction, control or prevention of situations. The first educational researchers adopted the experimental research model of the natural sciences. This implied the entry into the field of education of the research model applied to practice. This stage has four sub-stages; quantitative, qualitative, mixed, and science-based research for evidence-based professional practice:

3.1. Quantitative education research.

With the experimental method and the philosophy of empirical logic emerges the quantitative research model that became the scientific standard of educational research from 1930 to 1980, approximately. The quantitative research model focused on the following principles: (a) In the search for absolute truths, and the discovery of those universal laws of cause and effect that regulate learning. (b) In the application of a deductive model where the researcher tests theories, models or propositions and verifies them through experimentation. When experimentation is not possible, statistical tests of hypotheses are used to establish the validity of these or their probability of recurrence through surveys with random samples. (c) The use of standardized and objective measurement methods, procedures and instruments that exclude the values and biases of the researcher from the study. (d) Emphasis on verification of data collected. The presence of the scientific method is essential to evaluate the authenticity of the finding and the knowledge generated. (e) The accumulation of observable and verifiable facts as a mechanism to develop the knowledge to prevent, control or improve educational events or situations. Between 1950 and 1980, educational research relied exclusively on quantitative research to produce knowledge and develop the profession (Paul, 2005).

During these decades, educational research was characterized by the following: (a) research on the measurable and the observable, (b) objective research that excluded the subjective, the moral, and the political, and (c) research that produced the correct methods and practices of teaching and learning (e.g., Shadish, Cook, & Campbell, 2002; O'Leary, 2004; Balnaves & Caputi, 2001; Charles, 1988; Cohen & Manion, 1980).

3.2. *Qualitative education research.*

Between 1910 and 1930, many industrialized countries continue to experience the consequences of the change in life brought about by the industrial revolution. For example, the United States issued in 1918 the educational policy entitled the Cardinal Principles of Secondary Education that urged a redefinition of the curriculum in schools to respond to the country's social and economic needs. The study of the curriculum emerges as the cause and alternative to the problems of education. The curriculum, its construction, content, evaluation, and research and its relationship with society, emerges as the focus of education. The academic study of curriculum and instruction became the specialty that produced the first doctorates awarded in the Colleges of Education (Johanningmeir and Richardson, 2008; Condliffe, 2000).

Between 1930 and 1950, the study of the curriculum made it easier to connect disconnected pieces of this profession: (a) measurements of mental attributes developed by psychologists are aligned with specific curriculum activities and with teaching strategies developed by educators and philosophers. (b) Connecting and aligning the curricular sequence developed by educators with the stages of child growth developed by psychologists. (c) Connects attributes of the child's IQ and developmental levels, worked on by psychologists, with the curricular levels and their criteria for measuring learning, developed by educators. This brought up new variables in the learning equation: what role interpersonal relationships play in learning, what influence the student's culture has on learning, and how the learner's social class and mobility occur as a result of education. This established the intellectual ground for anthropologists to become interested in educational research (Johanningmeir & Richardson, 2008; Condliffe, 2000).

In the 1940s, some anthropologists began to investigate the social and cultural phenomena of education with their field research methods. Entering schools to observe and interview to understand education in diverse educational settings was a departure from quantitative research methods. These methods are eventually known as qualitative research.

Between 1950 and 1970, qualitative research is evident in educational research. Phenomenology, hermeneutics, and symbolic interaction emerge as philosophies of qualitative research to address problems in education. The understanding of social dynamics, human behaviors, and learning from ethnography in social anthropology, phenomenology in philosophy, and case studies in education positioned qualitative methods as an alternative model of educational research.

Two reasons seem to explain the acceptance of qualitative research in education: (a) The first generations of doctors graduated from the Colleges of Education began to study learning from the perspective of teaching and the curriculum, thus moving away from the study of mental processes that

swallowed the research in psychology. This new generation of educator-researchers began to adopt concepts from philosophy and the humanities, such as constructivism, postmodernism and the theory of social criticism, to explain the social and political phenomena of education, which quantitative research did not provide. (b) The study of the curriculum and teaching caused interest in educational psychology, statistics and the construction of tests to measure learning to the point that these disciplines almost disappeared in some Schools of Education (Walters, 2009). Between the 1960s and 1980s, educational research distanced itself from the statistical measurement of educational phenomena, and from the search for universal laws that would explain learning (Codliffe, 2000). There is an emerging interest in researching education in its diverse contexts, such as urban and rural schools and with students from different socioeconomic levels, elementary and secondary levels, and by subjects of study such as mathematics, languages or physical education (e.g., Ponce, 2014b; Merriam, 2009; Lichtman, 2006; Woods, 1996; Bogdan and Biklen, 1992; Manen, 1990; Straus and Corbin, 1990).

3.3. Research of mixed methods in education.

Between the 1970s and 1980s, the contrast of views on educational research unleashed a strong controversy among proponents of educational research that produced causal and generalizable explanations of education (quantitative research) versus those who advocated research that allowed for the understanding of social and political phenomena in diverse educational contexts (qualitative research). The 1980s was characterized as the paradigm war because of the debate that developed in academic and political forums between the proponents of quantitative research and qualitative research (Eisner and Peshkin, 1990). The two axes of the controversy were the superiority of one research model over the other (Tashakkori and Teddlie, 1998), and the legitimacy of qualitative research in the field of education (Denzin, 2009).

The debate on paradigms generated much discussion that contributed to the development and sophistication of educational research. The paradigm war brought out the lack of consensus and the philosophical divisions that exist among educational researchers about the nature of knowledge, social reality, and methods of how to investigate education (Paul, 2005). A better understanding of the strengths, weaknesses, and fragility of the validity and limited generalizability of quantitative and qualitative research in education is emerging.

In the 1990s, mixed-method research emerged as a third model of educational research. During this decade, the need for a research methodology that would reconcile the precision of quantitative data with the descriptive richness of qualitative data became evident. Mixed-method research is positioned as a respected research model in education and as a real model for

those who do not want to carry out quantitative or qualitative research (Caruth, 2013).

Several movements are emerging from the paradigm warfare that contributes to the development of mixed-method research in the field of education (Tashakkori and Teddlie, 1998; Greene, 2007; Ponce, 2011, 2014 and 2016): (a) A broader view of the concept of triangulation or the possibility of collecting data with more than one research strategy and approach, (b) The rejection of paradigmatic puritanism or strict adherence to quantitative or qualitative method philosophies, (c) A pragmatic vision of educational research or the emphasis on the research question and the product of study as the core of research emerges, (d) The compatibility thesis between quantitative and qualitative research has gained acceptance in the scientific research community of the United States and Europe. Quantitative and qualitative research, rather than different research approaches, are understood as complementary to each other (Phillips, D.C., 2009), and (e) the number of published studies employing mixed research methods is increasing.

The argument of these studies to integrate or combine quantitative and qualitative models in the design of their studies was the methodological robustness to study the problems of education (Ponce, 2014 and 2016; Caruth, 2013; Campos, 2009; Greene, 2007; Tashakkori and Teddlie, 1998). The emergence of mixed methods in educational research did not completely mitigate the paradigmatic debates among educational researchers about how to research education. Although mixed methods constitute a compromise between the objective elements of quantitative research and the subjective elements of qualitative research that were discussed in the paradigm war, the fact is that mixed-method research is a philosophical model of research applied to practice that does not enjoy the favor of some qualitative researchers (Flick, 2016).

3.4. Science-based research and evidence-based professional practice.

Between 1994 and 2001, the issue of the quality of public education was revived in political forums. On this occasion, the issue of the quality of educational research is linked to the quality of public education in the United States (Ponce, 2014 and 2016; Labarre, 2004; Condliffe, 2000), in England (Pring, 2000; Hammersley, 2007), and in Australia (Erickson, 2011). From the political point of view, it became clear that the expectation with educational research is that it provides the solutions to the problems of public education and that it prescribes its practices so that it develops scientifically. From the point of view of educational researchers, it became evident that the search for this ideal scientific method, and that it has been the driving force behind its development, has also been at the center of controversies with the quality of educational research (Condliffe and Shulman, 1999; Condliffe, 2000; Labaree, 2004; Walters, Lareau and Ranis, 2009).

The paradigm debate in the 1980s was a philosophical debate rather than a methodological one. In 2002, the Federal Government of the United States politically ended the controversy by regulating educational research for federal funding (Shavelson and Towne, 2002). A similar situation occurred in England (Hammersley, 2007). The political action consisted of delegitimizing qualitative research by not considering it scientific research and imposing a science-based research model to provoke evidence-based education, as occurs in the field of medicine. Two controversies emerge with the political imposition of the science-based research model to provoke evidence-based professional practice: the logic that justifies such an imposition and the relevance of the science-based model to provoke evidence-based professional practice in the field of education.

Denzin (2009) uses the term of the second paradigm war and Barnhouse, Lareau and Ranis (2009) use the term "the political judgment of educational research" to refer to the action of the Federal Government. The second paradigm war was triggered by the publication of the National Research Council (2002) (Denzin, 2009). The NRC is a non-profit entity (Shavelson and Towne, 2002), funded by the Federal Government of the United States of America (Denzin, 2009). Its role is to recommend policies to resolve disputes in the research field (Shavelson and Towne, 2002). In its publication, *Scientific Research in Education* (2002), the NRC takes the following position on educational research: (a) The quality of educational research is questionable. There is no consensus on the criteria for defining the quality of educational research. (b) Educational research is fragmented, and not very connected to inform public policy or classroom practice. (c) There are too many philosophical and methodological differences among researchers about what educational research should look like. (d) The tendency in Colleges of Education to favor qualitative research, in some cases, at the expense of quantitative research, opened the door to criticism about the quality of educational research. (e) The distinction made by academia between quantitative and qualitative research, and the categorization of educational research as basic and applied, is erroneous. It argues that scientific research is the same in any discipline of study. To improve the quality of educational research, it recommends that all federally funded educational research be scientific so that teaching practice is evidence-based. He asserts that the political community wants to invest money to improve education safely.

It establishes the following criteria to consider a research as scientific: (a) The use of systematic and rigorous procedures that allow direct investigation of the research question. (b) That it recognizes the context of the research. (c) That it responds to conceptual frameworks that allow the study's relationship to research logic, data, and interpretation to be seen. (d) That it tests and corroborates hypotheses and theories. (e) It allows the data to be related to the method in such a way that the findings can be verified and are

cumulative. (f) Rejects postmodernist schools of thought of social research that argue that knowledge is not objective. Although it recognizes that there are scientific designs of educational research, such as experiments with control groups in program evaluation, ethnographic studies, and case studies, not all educational research satisfies the criteria listed above. It recommends the implementation of guidelines and institutional compliance committees to evaluate, guarantee, and raise the quality of federally funded research.

Phillips (2009) and Vinovskis (2009) trace the influences of this political intervention to the paradigm wars of the 1980s. Walters (2009) points out that the debate on educational research since 1995 is not centered on the superiority of quantitative or qualitative methods, but on the quality, usefulness, and role of educational research in society: (a) It is questioned whether educational research is a reliable science or whether it really is a science. (b) It is questioned whether it is useful for the development of education, classroom practice, or the development of educational public policy. (c) Educational research is criticized for its lack of generalization and of defined theoretical frameworks to inform teaching practice. (d) It is criticized for its methodological ambivalence, the research questions it addresses, and the philosophical discrepancies it employs with the designs that guide it. The paradigm war of 1980 facilitated three movements that conclude in the "political judgment" that educational research faced (Walters, 2009): the movement of evidence-centered professional practice, the resurgence of the science-based research movement, and the political control of scientific research.

The second paradigm war was between educational researchers and educators against university academics from other disciplines, businessmen and politicians who criticize the quality of education and educational research. The criticism of these groups comes from the desire to improve public education, the clear economic interest they derive from federal funds, and their control of the field of scientific research. The 1980 paradigm debate, although academic, had political overtones that reflect the contrast between the values of the "scientific community" and the values of "influential groups" that lobby to defend the interests they represent (Lichtman, 2011; Denzin, 2009; Greene, 2007; Paul, 2005). The political presence in the field of education in the United States is historical and is evidenced through legislation and the allocation of federal funds for intervention and research programs (Condliffe, 2000). The political message to the academic community is an interest in a uniform vision of what "scientific research" in education means (National Research Council, 2002). The discussion of this second debate charted the path for the development of educational research aspiring to federal funds at this beginning of the 21st century: quantitative and experimental methods, probability sample studies to produce science-based research, and evidence-based professional practice. An open position on

science-based research and evidence-based professional practice is that it does not fully apply to the field of education. The field of education is nuanced by objective and subjective situations that involve multiple research approaches (Hammersley, 2007; Denzin, 2009).

4. Third Stage: Research inserted in practice

For the decade of 2010, the issue of the complexity of education is recurrent in educational research. The claim is that educational research needs a research model that helps it define itself as a unique field of scientific research, and that allows it to manage the phenomena that are manifested in this profession (Gómez Galán, 1998 and 2016; Clark, 2011; Cochran-Smith, Ell, Grudnoff, Ludlow, Haigh, and Hill, 2014; Gil Cantero and Reyer, 2014; McDonnell, 2016; Ponce and Pagán-Maldonado, 2016; Gómez Galán and Sirignano, 2016; Ponce, Pagán-Maldonado and Gómez-Galán, 2017 and 2018; Ponce and Pagán-Maldonado, 2017; Ponce, Gómez Galán and Pagán-Maldonado, 2017) The issue is not whether research methods should be quantitative, qualitative, or mixed, as was the case in the 20th century, but rather to what extent the research model applied to practice captures the complexity of education to produce the valid and generalizable data needed in practice and in the development of educational policies (Mejías, 2008; Lee, 2010; Clark, 2011; Thompson, 2012; Gutiérrez and Penuel, 2014; Phillips, 2014; Rudolph, 2014; Snow, 2015; McDonnell, 2016; Glass, 2016; Ponce, Pagán-Maldonado and Gómez-Galán, 2017 and 2018).

The challenge of educational research in the 21st century is that education is not a static research phenomenon, but is dynamic and responsive to the institutional context in which it occurs. In education, it is necessary to understand the students, who sometimes do not cooperate, sometimes are not interested, and sometimes do not even follow instructions. Classrooms are settings where multiple relationships and political and cultural influences are observed. The phenomena of education have little defined variables and are not constant. Education as a research phenomenon is very different from the physical phenomena studied in laboratories (Rudolph, 2014). Education is a domain where there is a great epistemological and methodological difficulty. Its practice is characterized by being liberating at times or by economic limitations at others, by government interference without warnings or with methodological impositions at times.

Educational research is difficult because learning is a phenomenon that involves people, in complex and specific contexts, that cannot be taken out of that context to be studied, where subjects have gender, sexual orientation, socioeconomic status, ethnicity, culture, interests and things that bore them, where some can eat breakfast and others cannot, some live in neighbourhoods where there are shootings and others do not (Phillips, 2014). This means that

an educational phenomenon cannot be described in isolation from the other social factors around it that affect it in one way or another. Researching education involves dealing with the complicated, confusing, impure, and uncertain phenomena that are manifested in this profession. One cannot study education by looking only at its students with standardized tests. It is necessary to study students and their relationship with other students and components of education and society (Lingard, 2015). Educational research needs to take a more complex look at education, avoid simplification, and better understand the processes and contexts of education (Cochran-Smith, Ell, Grudnoff, Ludlow, Haigh, and Hill, 2014; Gil Cantero and Reyer, 2014; Ponce, Pagán-Maldonado and Gómez-Galán, 2017; Ponce and Pagán-Maldonado, 2017; Ponce, Gómez Galán and Pagán-Maldonado, 2017).

Educational research needs to be flexible, culturally sensitive, and evolutionary in order to track and understand how students and teachers adapt educational practices to the institutional realities they face (Gutiérrez & Penuel, 2014). Progress in education will come from the use of multiple approaches that generate tools, such as curricula and programs, that serve the real needs of educators, and are supported by reliable information. This is possible if educational research adopts the model of "research embedded in practice" (Snow, 2015).

At the beginning of the 21st century, the "Design Based Research" or an educational research methodology that tries to connect research with practice emerges. The objective is to increase the transfer of knowledge between research and educational practice. The following characteristics are present in the DBR and would allow producing an educational research embedded in practice to generate new knowledge and validate it simultaneously (Anderson and Shattuck, 2012): (a) *To be placed in educational scenarios*. Being in the educational context increases the validity of the knowledge that is generated at least in the context where the research is developed. (b) *Focus on design to test an intervention*. An effective strategy has to effectively migrate from the experimental classroom to the regular classroom, with the regular students and with the regular educators. Researchers and educators jointly design the instructional intervention with its theory and implementation sequence. (c) *Mixed methods*. Researchers have to be pragmatic in their approach to study all the dynamics that develop in the implementation of the intervention. This implies the use of several research methods in the same study. (e) *Improvement in implementation*. The intervention is improved in practice to obtain positive results. (f) *Collaboration between researchers, educators, and students*. Understanding the scope of the intervention involves the collaboration of all the actors to understand the multidimensionality of education. (g) *Evolutionary design*. Study design will evolve as the intervention progresses and develops to capture the dynamics that emerge. The study is modified as it goes along. (h) *Practice in implementation*.

Procedural and implementation issues are eliminated because the researchers are embedded in the study. This should produce quantitative data without reference to margin of error because there are no probability samples. A detailed qualitative description of the processes and attitudes of the students and educators is produced, which allows the results to be appreciated.

The model of embedded research in practice seems to be most observed in the United States. It has yielded positive results in school improvement projects. It has been used in phases of years where researchers have intervened to study complete cycles of conceptualization, implementation, evaluation, and monitoring of interventions (Anderson and Shattuck, 2012). The research model embedded in practice responds to four gaps in educational research: (a) it generates knowledge of practice, (b) it validates new knowledge in practice, (c) it increases the generalization of knowledge about practice, and (d) it responds to the needs of the members and the realities of the educational systems (Ponce, Pagán-Maldonado and Gomez Galán, 2018).

5. Conclusion

Educational research is a maturing science. Its methodological evolution shows three phases of development: research without a particular research model, research applied to practice, and research inserted into practice. The analysis of these phases shows a history of academic philosophical debates that helps to better understand the field of education and educational research.

Systematizing the evolution of the philosophy of educational research can help to focus in a more efficient way which steps will be taken in the future. At present, when we are in a process of educational revolution produced by the presence of information and communication technologies (ICT) in society, the evolution of educational theory and practice in the new methodological molds that will be necessary in this new scenario must be taken into account.

References

- Anderson, T., & Shattuck, J. (2012). Design-Based Research: A Decade of Progress in Education Research? *Educational Researcher*, 41(1) 16–25. doi: 10.3102/0013189X11428813
- Balnaves, M., & Caputi, P. (2001). *Introduction to Quantitative Research Methods: An Investigative Approach*. London, Thousand Oaks, and New Delhi: Sage Publications..
- Barhouse, P., Lareau, A. y Ranis, S. H. (2009). *Education Research on Trial: Policy Reform and the Call of Scientific Rigor*. Routledge. New York, and London: Taylor and Francis Group.

- Bogdan, R., & Biklen, S. (1992). *Qualitative Research for Education: An Introduction to Theory and Methods* (2nd Ed). Boston, London, Toronto, Sydney, Tokyo, and Singapore: Allyn and Bacon.
- Campos, A. (2009). *Métodos Mixtos de Investigación: Integración de la Investigación Cuantitativa y la Investigación Cualitativa*. Bogotá: Investigar el Magisterio.
- Caruth, G. D. (2013). Demystifying Mixed Methods Research Design: A Review of the Literature. *Melvana International Journal of Education*, 3(2), 112-122. doi: 10.13054/mije.13.35.3.2
- Charles, C. M. (1988). *Introduction to Educational Research*. New York, and London: Longman.
- Clark, C. (2011). Education(al) Research, Educational Policy-Making and Practice. *Journal of Philosophy of Education*, 45(1), 37-57. doi: 10.1111/j.1467-9752.2010.00769.x
- Cochran, M., Ell, F., Grudnoff, L., Ludlow, L., Haigh, M., & Hill, M. (2014). When Complexity Theory Meets Critical Realism: A Platform for Research on Initial Teacher Education. *Teacher Education Quarterly*, 41(1), 105-122. doi: 10.4324/9781351201759-7
- Cohen, L., & Manion, L. (1980). *Research Methods in Education* (2nd Ed.). London, New York, and Sydney: Croom Helm.
- Condliffe, E. (2000). *An Elusive Science: The Troubling History of Education Research*. Chicago, and London: The University of Chicago Press.
- Condliffe, E., & Shulman, L.S. (Ed) (1999). *Issues in Education Research: Problems and Possibilities*. San Francisco: National Academy of Education and Jossey-Bass Publishers.
- Denzin, N. (2009). *Qualitative Inquiry Under Fire: Toward a New Paradigm Dialogue*. Walnut Creek, CA: Left Cost Press Inc.
- Eisner, E., & Peshking., A. (Eds.) (1990). *Qualitative Inquiry in Education: The Continuing Debate*. New York: Teachers College, Columbia University.
- Erickson, F. (2005). A History of Qualitative Inquiry in Social and Educational Research. In N. K. Denzin, & Y. S. Lincoln (eds.). *The Sage Handbook of Qualitative Research* (3rd ed., pp. 387–409). Los Angeles, and London: Sage.
- Flick, U. (2016). Challenges for a New Critical Qualitative Inquiry: Introduction to the Special Issue. *Qualitative Inquiry*, 23(1), 3-7. doi: 10.1177/1077800416655829
- Gil-Cantero, F., & Reyero, D. (2014). La Prioridad de la Filosofía de la Educación sobre las Disciplinas Empíricas de la Investigación Educativa. *Revista Española de Pedagogía*, 258, 263-280.
- Glass, G. V. (2016). One Hundred Years of Research: Prudent Aspirations. *Educational Researcher*, 45(2), 69–72. doi: 10.3102/0013189X16639026.

- Gómez Galán, J. (1998). *Educational System Evaluation and Quality*. Minneapolis, MN: College of Education and Human Development, University of Minnesota.
- Gómez Galán, J. (Ed.). (2016). *Educational Research in Higher Education: Methods and Experiences*. Aalborg: River Publishers.
- Gómez Galán, J., & Sirignano, F. M. (2016). *Theory and Practice in Educational Research*. Naples: Università degli studi di Suor Orsola Benincasa.
- Green, B. (2010). Knowledge, the Future, and Education(al) Research: A New-Millennial Challenge. *The Australian Educational Researcher*, 37(4), 43-62. doi: 10.1007/bf03216936
- Greene, J. (2007). *Mixed Methods in Social Inquiry*. San Francisco: Jossey-Bass & Wiley.
- Gutiérrez, K. D., & Penuel, W. R. (2014). Relevance to Practice as a Criterion for Rigor. *Educational Researcher*, 43(1), 19–23. doi: 10.3102/0013189X13520289
- Hammersley, M. (Ed) (2007). *Educational Research and Evidence-Based Practice*. Los Angeles, London, & New Delhi: Sage Publications.
- Hedges, L., & Hanis-Martin, J. (2009). Can Non-Randomized Studies Provided Evidence of Causal Effects? A Case Study Using the Regression Discontinuity Design. In P. B. Walter, A. Lareau, & S. H. Ranis (2009). *Education Research on Trial: Policy Reform and the Call for Scientific Rigor* (pp.105-113). New York, and Londres: Taylor & Francis Group.
- Johannigmeier, E. V., & Richardson, T. (2008). *Educational Research, the National Agenda, and Educational Reform: A History*. Charlotte, NC: Age Publishing, Inc.
- Koishiro, M. (2013). Cultivating the Ground for the Study of Education as an Inter-disciplinary Enterprise: A Philosophical Perspective. *Educational Studies in Japan: International Yearbook*, 7(3), 37-49. doi: 10.7571/esjkyoiku.7.37
- Labaree, D (2004). *The Trouble with Ed Schools*. New Haven, and London: Yale University Press.
- Lee, A. (2010). What Count as Educational Research? Spaces, Boundaries, and Alliances. *The Australian Educational Researcher*, 37(4) 63-78. doi: 10.1007/bf03216937
- Lichtman, M. (2006). *Qualitative Research in Education: A User's Guide*. Thousand Oaks: Sage Publications.
- Lichtman, M. (2011). *Understanding and Evaluating Qualitative Educational Research*. Los Angeles: Sage Publications.
- Lingard, B. (2015). Thinking About Theory in Educational Research: Fieldwork in Philosophy. *Educational Philosophy and Theory*, 47(2), 173–191. doi: 10.1080/00131857.2013.793928

- Lysenko, L., Abrami, P., Bernand, R., Degenais, C., & Janosz, M. (2014). Educational Research in Educational Practice: Predictors of Use. *Canadian Journal of Education*, 37(2), 1-26.
- Manen, M. (1990). *Researching Lived Experiences: Human Science for an Action Sensitive Pedagogy*. Albany, NY: State University of New York Press.
- McDonnell, L. M. (2016). Evolving Research Perspectives on Education Politics and Policy. *Educational Researcher*, 45(2), 142-148. doi: 10.3102/0013189X16639041.
- McMillan, J. H., & Schumacher, S., (2005). *Investigación Educativa: Una Introducción Conceptual* (5th Ed). Madrid: Pearson and Addison
- Mejías, A. (2008). My self- as- philosopher and My self –as- Scientist Meet to do Research in the Classroom: Some Davidsonian Notes on the Philosophy of Educational Research. *Studies in Philosophy and Education*, 27(2-3), 161-171
- Merriam, S. (2009). *Qualitative Research: A Guide to Design and Implementation*. New York: Jossey-Bass.
- O’Leary, Z. (2004). *The Essential Guide to Doing Research*. London, Thousand Oaks, and New Delhi: Sage Publications.
- Paul, J. (2005). *Introduction to the Philosophies of Research and Criticism in Education and the Social Sciences*. Upper Sanddle River, NJ: Pearson & Merrill Prentice Hall.
- Peters, M. (2012). Editorial. Educational Research and the Philosophy of Context. *Educational Philosophy and Theory*, 44(8), 793-800. doi: 10.1111/j.1469-5812.2012.00845.x
- Phillips, D.C. (2009). A Quixotic Quest? Philosophical Issues in Assessing the Quality of Educational Research. In P. Walters, A. Lareau y S. Ranis (Ed.). *Education Research on Trial: Policy Reform and the Call for Scientific Rigor* (pp. 785-907). New York, and London: Routledge.
- Phillips, D. C. (2014). Research in the Hard Sciences, and in Very Hard “Softer” Domains. *Educational Researcher*, 43(1), 9–11. doi: 10.3102/0013189X13520293.
- Ponce, O. A. (2011). *Investigación de Métodos Mixtos en Educación: Filosofía y Metodología*. Hato Rey: Publicaciones Puertorriqueñas Inc.
- Ponce, O. A. (2014a) *Investigación Cualitativa en Educación: Teoría, Prácticas y Debates*. San Juan: Publicaciones Puertorriqueñas Inc.
- Ponce, O. A. (2014b). *Investigación de Métodos Mixtos en Educación*. Hato Rey: Publicaciones Puertorriqueñas Inc.
- Ponce, O. A., & Pagán-Maldonado, N. (2015). Mixed Methods Research for Education: Capturing the Complexity of the Profession. *International Journal of Educational Excellence*, 1(1), 111-135. doi: 10.18562/ijee.2015.0005

- Ponce, O. A., & Pagán-Maldonado, N. (2016). Investigación Educativa: Retos y Oportunidades. In J. Gómez Galán, E. López Meneses y L. Molina (Eds.). *Research Foundations of the Social Sciences* (pp. 110-121). Cupey: UMET Press.
- Ponce, O. A. (2016). *Investigación Educativa*. San Juan: Publicaciones Puertorriqueñas Inc.
- Ponce, O. A., Pagán-Maldonado, N., & Gómez Galán, J. (2017). *Filosofía de la Investigación Educativa en una Era Global: Retos y Oportunidades de Efectividad Científica*. San Juan: Publicaciones Puertorriqueñas, Inc.
- Ponce, O. A., & Pagán-Maldonado, N. (2017). Educational Research in the 21st Century: Challenges and Opportunities for Scientific Effectiveness. *International Journal of Educational Research and Innovation*, 8, 24-37.
- Ponce, O. A, Gómez Galán, J., & Pagán-Maldonado, N. (2017). Philosophy of Science and Educational Research. Strategies for Scientific Effectiveness and Improvement of the Education. *European Journal of Science and Theology*, 13(4), 35-46
- Ponce, O. A. (2017). Investigación Educativa como un Movimiento Internacional: Nuevas Fronteras. *International Journal of Educational Research and Innovation*, 8, I-IV.
- Ponce, O. A., Pagán-Maldonado, N., & Gómez-Galán, J. (2018). *Philosophy of Educational Research in a Global Era: Challenges and Opportunities for Scientific Effectiveness*. San Juan: Publicaciones Puertorriqueñas, In.
- Ponce, O. A., Gómez Galán, J., & Pagán-Maldonado, N. (2018). Investigación-Evaluación en una Era de Rendición de Cuentas: Perspectiva Internacional. In E. López Meneses, D. Cobos, A. H. Martín, L. Molina, Alicia Jaén (eds.). *Experiencias Pedagógicas e Innovación Educativa: Aportaciones desde la Praxis Docente e Investigadora* (pp. 2628-2642). Barcelona: Editorial Octaedro.
- Prings, R. (2000). *Philosophy of Educational Research* (2nd Ed). London: Continuum.
- Radford. M (2006). Researching Classrooms: Complexity and Chaos. *British Educational Research Journal*, 32(2), 177-190. doi: 10.1080/01411920600568950
- Rudolph, J. L. (2014). Why Understanding Science Matters: The IES Research Guidelines as a Case in Point. *Educational Researcher*, 43(1), 15-18. doi: 10.3102/0013189X13520292
- Segovia, J. (1997). *Investigación Educativa y Formación del Profesorado*. Madrid: Editorial Escuela Española.
- Shadish, W., Cook, T., & Campell, D. (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inferences*. Boston & New York: Houghton Mifflin Company.

- Shavelson, R., & Towne, L. (Ed) (2002). *Scientific Research in Education*. Washington, DC.: National Research Council. National Academy Press.
- Snow, C. E. (2015). Rigor and Realism: Doing Educational Science in the Real World. *Educational Researcher*, 44(9), 460–466. doi: 10.3102/0013189X15619166.
- Strauss, A., & Corbin, J. (1990). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Newbury Park, London, and New Delhi: Sage Publications.
- Tashkkori, A., & Teddlie, C. (1998). *Mixed Methodology: Combining Qualitative and Quantitative Approches*. Thousand Oaks: Sage Publications.
- Thompson, C. (2012). Theorizing Education and Educational Research. *Studies in Philosophy and Education*, 31(3), 239-250. doi: 10.1007/s11217-012-9290-y
- Vinovkis, M. (2009). A History of Efforts to Improve the Quality of Federal Educational Research: From Gardner’s Task Force to the Institute of Educational Science. In P. Walter, A. Lareau & S. H. Ranis (Eds). *Education Research on Trial: Policy Reform and the Call for Scientific Rigor* (pp. 51-80). New York, and London: Taylor & Francis Group.
- Walters, P. B. (2009). The Politics of Knowledge. In P. Walter, A. Lareau & S. H. Ranis (Eds). *Education Research on Trial: Policy Reform and the Call for Scientific Rigor* (pp. 744-776). New York, and London: Taylor & Francis Group.
- Walter, P. B., Lareau, A., & Ranis, S. H. (2009). *Education Research on Trial: Policy Reform and the Call for Scientific Rigor*. New York, and London: Taylor & Francis Group.
- Woods, P. (1996). *Researching the Art of Teaching. Ethnography for Educational Use*. London, and New York: Routledge.



© 2020 Ponce, Pagán-Maldonado, & Gómez Galán, International Journal of Educational Excellence, Universidad Ana G. Méndez (UAGM). This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly credited.

School Variables and Inclination towards Dropout of Secondary School Students: A Case Study

Abisola Oladeni Sakirudeen ^a, & Taiwo Akinloye ^b

Received: 21 June 2020 • Accepted: 17 September 2020

Abstract: This study was carried out to investigate school variables and inclination towards the dropout of secondary school students in Akwa Ibom State (Nigeria). Four research questions and four null hypotheses were formulated to guide the study. An ex-post facto research design was adopted for the study. The population of 16,639 Senior Secondary School two (SS2) students with a sample of 300 students selected from 6 public secondary schools in the study area. For the study, the “School Variables and Inclination towards Dropout questionnaire (SVIDQ)” were used to obtain data from the respondents. The research instrument has a 4 - point rating scale. Cronbach Alpha reliability method was used in establishing the reliability of the instrument and a reliability coefficient of .84 was realized. After the administration, scoring, and collation of the instrument, the data obtained were subjected to the dependent t-test analysis. All the null hypotheses were tested at a 0.05 level of significance. All were rejected showing that test/examination, co-curricular activities, school rules and regulations, and teacher-student relationship significantly influence inclination towards dropout of secondary school students. It is recommended that the government should employ more teachers to help curb the discrepancies of the teacher-student ratio to enhance a positive teacher-student relationship. This would be more important for greater educational success and improved promotion to university.

Key Words: school dropout; teacher-student relationship; educational promotion; educational success; curricular activities; educational variables.

^a University of Uyo (Nigeria)  ORCID 0000-0002-4931-9077 ^b Assanusiyah College of Education (Nigeria). Correspondence: Abisola Oladeni Sakirudeen. Department of Educational Foundations, Guidance and Counselling. Faculty of Education. University of Uyo, Uyo Akwa Ibom State, Nigeria. abisola4u@gmail.com

1. Introduction

The schools handled in Nigeria by colonial administration after independence in 1960 were retrogressive defective and perhaps attempts making the nation schools growth backward. The system failed to meet the needs and aspirations of the nation in terms of her manpower to savage the requirements for national development. Every society has some kind of arrangement for bringing up and training her young ones to prepare them for life. The Nigeria philosophy of education is based on the development of the individual into a sound and effective citizen and the provision of equal educational opportunities for all citizens of the country at the primary, secondary and tertiary levels, both inside and outside the formal school system. Thus, education is a basic requisite for the development of responsible citizenship, maintenance of productive ways of life, and successful preparation for entry into the dynamic working world.

Secondary education is the form of education children receive after primary education and before tertiary education. In this respect, secondary school education is viewed as very crucial since it is at this level of education that students are prepared for entering into tertiary level education. It is also at this stage that a child's fate in respect of what he will become in the future, particularly about career direction is decided. The importance of secondary education as preparation for useful living within the society and preparation for higher education cannot be overemphasized (Federal Republic of Nigeria, 2013). However, many students dropout of secondary schools and unable to acquire secondary education despite its importance. There are many reasons for students' dropout of which may include curricular activities, school problems, school rules and regulations, family problems, and teachers' relationship with students. Other factors include poor lack of recreational facilities, the geographical location of the school, financial constraints, and other personal-social problems. According to William (1971), when a student drops out of school, his behavior generates a variety of reactions from the social milieu, school, parents, peers, and even from his or her self.

The inclination to dropout of schools has not only assumed disturbing proportion, they have also become one of the current problems facing educational development in the country generally. The government has stepped in by issuing directives threatening parents who withdraw their wards prematurely from the school system with a prosecution. A good example is the Universal Basic Education Law passed by the Akwa Ibom State House of Assembly on June 23, 2005 (Udo, 2005). There is also the recent declaration of free and compulsory education for all children in primary and secondary school levels in Akwa Ibom state. The failure to complete school has severe consequences for the individual as well as for the society.

Inclination means a natural tendency or urges to act or feel in a particular way. It is an individual's disposition towards a particular action or event. The inclination to dropout refers to the tendency or urges of a student to discontinue school with or without reasons. It is the fondness of students' attitude towards giving-up on their schooling. Rosenberg (1960) defines inclination as a way a person feels, acts, or responds in a particular way towards specific events or objects. According to him, when the inclination is studied, what will be observed are the evoking stimuli on one hand and the various types of responses on the other. Viewed against this description, an inclination must therefore have a behavioral component because a response predisposition must lead to some actions like dropping out of school when it is suitably activated.

The idea of dropping out describes the process by which a person discontinues or refrains from continuing with what he sets out to do. Applying it to the school situation, it refers to the process of withdrawing from or discontinuing formal school attendance before graduation without reason. According to Austin (2006: 22), "a student who leaves school for any reason except death, suspension, or expulsion before graduation or completion of a program of study and without transferring to another school can be classified as dropout". Based on this understanding, the term 'dropout' is used to describe a student who could not complete his/her education at any level due to one reason or the other (Austin, 2006). Austin also views the term in educational spheres as the act of withdrawing from school officially or unofficially. Students' tendency to dropout of school cannot be studied in isolation.

School variables are those factors from the school environment that could cause students to drop out from school before graduation such variables include facilities, social groups, school infrastructure, teachers-students relationship, and school activities (Donnelly, 2015). For instance, Donnelly (2015) maintained that the way a student views his/her school environment determines the extent of commitment to school activities till graduation.

As stated by Hembree (2008) students who perceive that they cannot withstand the learned helplessness experienced in testing situations, anticipated punishment for failure, and lack self-efficacy in testing situations may decide to drop out of school to avoid harassment and embarrassment. Participation in tests and examinations causes anxiety in students that forces them to divide their attention between behaviors relevant to the task of somatic concerns and other anti-social behaviors (Hambree, 2008). Additionally, students with high levels of anxiety as a result of participation in tests and examinations tend to study more, yet they retain their belief that they will still perform poorly on the assessment and they display difficulty in encoding the information that they have studied exhaustively (Ormord, 2011). If this situation finally occurs in the tests and examinations, the students try to

avoid subsequent tests and examinations, exhibit dropout tendencies, and finally dropout (Ormrod, 2011).

According to Milderd (1954), Crowder (2003), Narayanan and Murphy (2017), most students engage in partying which makes them also involve in smoking and clubbing. They stated further that partying requires money and distracts students from school; students dropout of school to engage in some forms of economic activities that can fetch them money for their social activities. Most parties take place at the night. Students who involve in night parties go to bed late and find it difficult to wake up early enough and prepare for school, thereby making them stay away from school. This continuous activity can make them incline towards dropping out of school. These authors noted that most students, who party a lot avoid school, engage in cultism, stealing, and armed robbery.

Sound rules and regulations of a school checkmate students' substance abuse and other delinquent behavior, except for the bad students who still indulge in negative behaviors and when they are severely punished for their acts, they may decide to leave the school (Johnson, 2013). More specifically, sound rules and regulations are linked to lower levels of drug use as well as less report of delinquent attitudes among students (Loukas, 2006). Students perceive school climate, appropriate rules, and regulations as predictive of better psychological well-being, good academic achievement, and mitigate against dropping out of school in their early secondary school education (Anderson, 1982). Studies have shown that school rules and regulations correlate highly with decreased student absenteeism and dropping out of school (Dejung and Kenneth, 1986), and with a lower rate of student suspension (Gregory and Fan, 2011).

Interpersonal relationships between teachers and students may contribute to students' wanting to drop out of school. For example, if a teacher has lower expectations for, or responds negatively to certain students, achievement by such students may be negatively affected and the students might drop out of school. In some schools, there is often less emotional support from teachers, more emphasis is on their relative ability and competition to their examination or test. There is a bridge decreased in social contact between teachers and students which can hinder them in achieving their educational goals and this could lead them from wanting to leave school without completion of their studies (Bridgeland, Diblulio and Balfanz 2009). Students must be able to identify with their teachers and connect to the school environment for effective learning and school completion.

In essence, school variables and inclination towards dropout of secondary school students in Akwa Ibom State are focused on the impression develop about what school stands for based on their personal and environmental or social background. The study also investigates how these

school variables impact on students' sense of judgment which predicts their continued adjustment to schooling or possible dropout from school.

2. Background

The continued high rate of dropouts among secondary school students in Akwa Ibom State demands critical study considering its negative consequences on the social-economic lives of the individuals and society. Personal observations by the researcher reveal that many criminal activities appear to be perpetrated in the study area by youths who dropped out of school. This development has become a cause of serious concern to all well-meaning Akwa Ibomites. This development suggests that the educational system in the area of study needs very serious attention to attain expected goals. The consequences of dropout to both students and society are substantial and far-reaching.

The researcher personally observes that most of these students after the completion of their senior secondary find it difficult to continue to a higher educational level. A good number of students just stay away from school on several occasions without reasonable excuses. If this situation continues, the economy and means of livelihood as well as the development of the state may be threatened. The money spent by the State Government to provide free and compulsory education for them would have been wasted.

The inclination to dropout is unfortunate for students, particularly in this age of technological development where idle hands are easily exposed to crimes and their consequences. Most secondary school students see curricular activities in schools such as examination as being too difficult and time-consuming. Some view school as a cage where people are given rules and regulations to abide with. A greater number of students see schooling as too demanding where teachers and students are rivals with each other. While a majority of the students in secondary school view co-curricular activities as laborious.

Considering the high level of drop-out in the study area and the need to is that those school variables which could influence students' tendency to drop out of school, the researcher, therefore, carried out this study and focused on school variables such as school challenges, writing an examination, co-curricular activities, and school rules and their influences on students' inclination to dropout in Akwa Ibom State.

3. Objectives

The purpose of the study was to investigate school variables and inclination towards dropout of secondary school students in Akwa Ibom State. Specifically, the study sought to:

- i. Determine the influence of students' attitude to examination on the inclination towards dropout
- ii. Determine the influence of Co-curricular activities on the inclination towards dropout
- iii. Determine the influence of school rules and regulations on the inclination towards dropout
- iv. Determine the influence of teacher-student relationship on the inclination towards dropout

3.1. Significance of the study

The findings of this study would be a benefit to teachers, school principals, school counselors, students, parents, government, and future researchers. The findings of this study would guide secondary school teachers on how to make curricular activities to be pleasurable to counter dropout tendencies among secondary school students. The findings on the teacher-student relationship would give teachers insight on how to encourage students with tendencies to drop out of school and deal with such tendencies. This would necessarily precipitate changes in the style of school governance and student-teach interactions and relations.

Through the findings of this study, it would enable principals to use necessary strategies to ensure that rules and regulations are jointly fixed by school authority and students. The findings of the study on family support would give the school counselors enough information and insight into the workings of family influences, and interpersonal relationship between parents and students and how these can influence adolescent decision-making. This is so because most of the decisions to join cult groups or be involved in other anti-social activities which may lead to dropout may emanate from informal systems of friendship.

Concerning students would understand the negative consequences of dropping out of school and persevere till they finish their school for a better future. Students would also use the findings and recommendations of this study as guideposts towards eliminating perception about schooling and see schooling as a worthwhile event.

In terms of family, support would enable parents to develop strategies to use in motivating their children to continue in school through adequate provision of supports. It is hoped that the findings of this study would bridge the gap between the school and home as it may lead to teachers and counselors redefining their roles and broadening the perspectives of their jobs and roles to extend beyond school boundaries into the home at-risk students. The point here is to help draw parents into the process of schooling and education of their children.

The findings of this study would give education policy makers adequate information to guide them in their educational policy implementation,

especially regarding free and compulsory education. The findings would be of immense benefit to future researchers as the findings would boost their empirical studies.

3.2. Research Questions

The following research questions were formulated to guide the study.

1. How do students attitude to examination influence inclination towards dropout
2. How do co-curricular activities influence inclination towards dropout
3. How do school rules and regulations influence inclination towards dropout
4. In what way does the teacher-student relationship influence inclination towards dropout.

3.3. Research Null Hypotheses

- i. There is no significant influence of students attitude to examination on the inclination towards dropout
- ii. There is no significant influence of co-curricular activities on the inclination towards dropout
- iii. There is no significant influence of school rules and regulations on the inclination towards dropout
- iv. There is no significant influence of the teacher-student relationship on the inclination towards dropout.

4. Methods

4.1. Methodology

The researcher adopted an ex-post facto research design. This was deemed appropriate because the researcher did not have direct control of the independent and dependent variables since their manifestations have already occurred and cannot be manipulated. Isaac and Michael (2005) noted that the ex-post facto research design method is often used instead of the experimental design method to test hypotheses about causes and effect relationships among variables that cannot be manipulated experimentally. The sample size of this study consisted of 300 senior school Two (SS2) students from 6 public secondary schools. In each sampled school, 50 students were selected to take part as the respondents.

4.2. Instrumentation

The researcher developed an instrument for data collection called “School Variables and Inclination towards Dropout Questionnaire (SVITDQ)”. Experts in Test and Evaluation in the Department of Educational

Foundation, Guidance, and Counseling, Faculty of Education, University of Uyo, critically scrutinized the contents of the questionnaire. The validators affected necessary corrections on the draft copy before accepting it suitable for further procedures. The questionnaire comprised of two sections, A and B. Section A comprised of items on the independent variables, section B comprised of items on Inclination toward dropping out. The instrument had a 4-point rating scale as follows: Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD).

5. Results

5.1. Research Question One

How do students' attitudes to examination influence the inclination towards dropout of secondary school students in Akwa Ibom State?

Attitude to Test/Examination	n	Mean	SD	Mean Diff
High	167	30.58	8.04	8.22
Low	133	24.46	9.12	

Field Work, 2020

Table 1. Mean and Standard Deviation Scores on Influence of Students Attitude to Test/Examination and Inclination towards Dropout

As shown in Table 1 on the influence of students' attitude to test/examination and inclination towards dropout shows a mean of 30.58 and 24.46 respectively with a mean difference of 8.22. students whose mean scores on attitude towards tests/examination were above the median score of 14.01 were 167, while those whose mean scores were lesser than the median score of 133. The result shows that students' attitude towards tests/examination has a high influence on their tendency to dropout of school. This result implies that students who view tests/examinations positively are more likely to continue in school than those who perceive it negatively.

5.2. Research Question Two

How do co-curricular activities influence the inclination towards dropout of secondary school students in Akwa Ibom State?

Co-Curricular Activities	n	Mean	SD	Mean Diff
High	171	25.89	4.76	5.21
Low	129	19.61	6.32	

Field Work, 2020

Table 2. Mean and Standard Deviation Scores on Influence of Students Attitude to Co-Curricular Activities and Inclination towards Dropout

As shown in Table 2, the calculated mean scores of 25.89 and 19.61 for high and low influence of Co-curricular activities on students' inclination towards dropout respectively based on the median score of 6.0. A mean difference of 5.21 was also realized. From the result, it was found that the mean score in inclination towards dropout for high influence is greater than that of the low influence hence, it shows that co-curricular activities have an influence on students' inclination to dropout.

5.3. Research Question Three

How do school rules and regulations influence the inclination towards dropout of secondary school students in Akwa Ibom State?

School Rules and Regulations	n	Mean	SD	Mean Diff
High	183	32.11	7.48	8.04
Low	117	21.01	6.89	

Field Work, 2020

Table 3. Mean and Standard Deviation Scores on Influence of Students Attitude to School Rules and Regulations and Inclination towards Dropout

The result as presented in Table 3 indicates mean scores of 32.11 and 21.01 for the high and low influence of school rules and regulation on students' inclination to dropout respectively with a mean difference of 8.04. students with mean scores above the median score of 6.0 were 32.11, while those scores lesser than the median score (6.0) were 117. The result shows that school rules and regulations have a high influence on students' inclination towards dropout. This implies that students who perceive school rules and regulations positively are less likely to dropout of school than their counterparts who perceive it negatively.

5.4. Research Question Four

In what way does the teacher-student relationship influence inclination towards the dropout of secondary school students in Akwa Ibom State?

Teacher-Student Relationship	n	Mean	SD	Mean Diff
High	163	39.43	5.78	9.01
Low	137	30.17	6.00	

Field Work, 2020

Table 4. Mean and Standard Deviation Scores on Influence of Students Teacher-Student Relationship and Inclination towards Dropout

Table 4 shows mean scores of 39.43 for those above the median score and 30.17 for those less than the median score and a mean difference of 9.01 for teacher-student relationship and students' dropout tendency. Students with high influence of teacher-student relationship were more than those with low high influence. The result indicates that the teacher-student relationship has a high influence on their inclination to dropout of school. The result implies that students who view teacher-student relationships positively are less likely to dropout of school than those who perceived it negatively.

5.6. Ho1

There is no significant influence of students' attitude to test/examination on the inclination towards dropout of secondary school students in Akwa Ibom State?

Variables	n	Mean	SD	df	t _{value}	t _{Cal}
Test/Examinations	300	13.66	5.25	299	1.96	-13.49
Dropout Tendency	300	19.56	7.02			

Field Work, 2020 Significant at P<0.05 alpha level, t-cal=-13.49, t-crit= 1.96, df=299

Table 5. Summary of Dependent t-test Analysis of Influence of Test/Examinations on Inclination towards Dropout of Secondary School Students

The analysis in Table 5 produced a calculated value of -13.49 when compared to the critical t-value of 1.96 at a .05 level of significance with 299 degrees of freedom, it was found that the t-value is greater than the calculated value. Based on this finding, the null hypothesis which stated that there is no significant influence of students' attitude to test/examinations on the inclination towards dropout was not retained. This implies that there was a significant influence of test/examinations on the inclination towards the dropout of secondary school students.

5.7. Ho2

There is no significant influence of co-curricular activities on the inclination towards dropout of secondary school students in Akwa Ibom State?

Variables	n	Mean	SD	df	t _{value}	t _{Cal}
Co-curricular Activities	300	10.08	5.01	299	1.96	-9.69
Dropout Tendency	300	20.46	9.78			

Field Work, 2020 Significant at P<0.05 alpha level, t-cal=-9.69, t-crit= 1.96, df=299

Table 6. Summary of Dependent t-test Analysis of Influence of Co-curricular Activities on Inclination towards Dropout of Secondary School Students

The analysis in Table 6 produced a calculated value of -9.69 when compared to the critical t-value of 1.96 at a .05 level of significance with 299 degrees of freedom, it was found that the t-value is greater than the calculated value. Based on this finding, the null hypothesis which stated that there is no significant influence of Co-curricular activities on the inclination towards dropout was not retained. This implies that there was a significant influence of co-curricular activities on the inclination towards the dropout of secondary school students.

5.8. Ho3

There is no significant influence of school rules and regulations on the inclination towards dropout of secondary school students in Akwa Ibom State?

Variables	n	Mean	SD	df	t _{value}	t _{Cal}
School Rules and Regulation	300	15.91	4.61	299	1.96	-7.89
Dropout Tendency	300	21.03	13.85			

Field Work, 2020 Significant at P<0.05 alpha level, t-cal=-7.89, t-crit= 1.96, df=299

Table 7. Summary of Dependent t-test Analysis of Influence of School rules and regulations on Inclination towards Dropout of Secondary School Students

The analysis in Table 7 produced a calculated value of -7.89 when compared to the critical t-value of 1.96 at a .05 level of significance with 299 degrees of freedom, it was found that the t-value is greater than the calculated value. Based on this finding, the null hypothesis which stated that there is no significant influence of school rules and regulations on the inclination towards dropout is not retained. This implies that there was a significant influence of school rules and regulations on the inclination towards the dropout of secondary school students.

5.9 Ho4

There is no significant influence of teacher-student relationship on the inclination towards dropout of secondary school students in Akwa Ibom State?

Variables	n	Mean	SD	df	t _{value}	t _{Cal}
Teacher-Student Relationship	300	23.28	5.58	299	1.96	-16.05
Dropout Tendency	300	41.61	10.85			

Field Work, 2020 Significant at P<0.05 alpha level, t-cal=-16.05, t-crit= 1.96, df=299

Table 8. Summary of Dependent t-test Analysis of Influence of Teacher-Student Relationship on Inclination towards Dropout of Secondary School Students

The result of the analysis in Table 8 above on the influence of teacher-student relationship on students' inclination towards dropout of secondary school students showed that the calculated t-value of -16.05 when compared to the critical t-value of 1.96 at .05 level of significance with 299 degrees of freedom, the result was found the critical t-value (1.96) is greater than the calculated value (-16.05). Based on this result, the null hypothesis was rejected showing that students' perception of teacher-student relationships significantly influences students' inclination to drop out of school.

6. Discussion

The results of the findings in this study were discussed in this section based on the research questions and hypotheses used in guiding the study.

6.1. Test/Examinations and Students Inclination towards Dropout

The finding on the research hypothesis revealed that inclination towards dropout by secondary school students is influenced highly by the attitude to test/examination in school. The findings revealed that students who detest test/examinations in school are more likely to drop out of school. Most students pretend to be sick during tests/examinations to be allowed by their parents to stay away from school. There is no doubt concerning this finding, students who dread tests/examinations are likely to fail and consequently dropout of school. The finding is in support of the observation of Garry (2015) who noted that many students who see themselves as incapacitated suffer greater anxiety, have little confidence and low self-esteem in their ability to withstand test/examinations, stay away from school on the date of test and examinations, and finally dropout.

6.2. Co-curricular Activities and Students Inclination towards Dropout

The finding revealed that co-curricular activities have highly influenced students' tendency to drop out of school. The finding suggested that students who see co-curricular activities as burdensome and time-consuming are more likely to dropout of school than those students who enjoy co-curricular activities. For instance, most students who love school games and other happenings are likely to attend school so that they can take part in those actions. The finding revealed a significant influence of co-curricular activities on the inclination towards dropout. The finding of this study corroborates the finding of Narayanan and Murphy (2017) who reported that it is the less disciplined students and students with a low ability that allow social activities like going to cinema and sporting activities to influence them and this made to drop out of school since they have little or no interest in academics.

6.3. School Rules and Regulations and Students Inclination towards Dropout

The finding of research hypothesis three revealed that school rules and regulations have highly influenced students' inclination towards dropout. The findings suggested that students who see school rules and regulations as punishment or unbearable are more inclined to dropout of school than those students who see school rules and regulations as a normal thing are less inclined to dropout of school. In other words, students' tendency to dropout of the school depends greatly on how the students view school rules and regulations. Finding hypothesis three revealed a significant influence of school rules and regulations on students' inclination towards dropout. The finding is in line with the finding of Ayenibiowo and Akinbode (2011) who opined that in a school where students, especially low-achieving students perceive the rules and regulations as too strict and not supportive may choose to drop. According to the authors, students may perceive school rules and regulations as restricting them from involving in examination malpractice, smoking, using foul languages, forming confraternities, bullying, disrespecting school authorities or getting involved in delinquent behavior and so drop out from school.

6.4. Teacher-Student Relationship and Inclination towards Dropout

The finding of research hypothesis four revealed that the teacher-student relationship has a high influence on the inclination towards dropout by secondary school students. The finding suggested that the way students see their teachers determine whether they would continue or dropout of school. There is no doubt that students who perceive their teachers as loving, caring, models, and so on are more likely to continue in school than those students who view their teachers as enemies, wicked and inconsiderate. Finding on hypothesis four also revealed a significant influence of perception of the teacher-student relationship on the inclination towards dropout by secondary school students. The finding is in line with the opinion of Bridge *et al* (2009) believe that teacher behavior towards a student is a major determinant of students' attitude towards dropping out of school. The relationship between actions and outcomes or the contingency of teachers is important to how students perform and how they stay in school.

7. Conclusions

Based on the findings of the study, it is concluded that a positive attitude towards co-curricular activities by students reduces dropout tendency by students and promotes school continuation. Equally, that favorable perception of school rules and regulations helps to reduced student's tendency to drop out of school. Similarly, a positive view of tests/examinations

increases student's completion of studies. In the same vein, a positive and favorable teacher-student relationship would promote students' completion of school.

Based on the findings and conclusion of this study, the following recommendation was made: (a) Counsellors in secondary schools should organized programs for students that would help them to develop a positive attitude towards test/examinations so that they can achieve their desired academic goals; (b) Students in secondary school should not be forced to participate in any co-curricular activities that they do not wish to part take; (c) Ministry of Education should ensure that strict rules and regulations are minimized in secondary schools to reduce student's dropout tendency; and (d) Government should employ more teachers to help curb the discrepancies of teacher-student ratio to enhance a positive teacher-student relationship.

References

- Anderson, C. (1982). The search for school climate. *A Review of Educational Research*, 52(3), 368-420. doi: 10.3102/00346543052003368
- Austin, A. W. (2006). *Predicting academic performance in College*. New York: Free press, pp. 288-293
- Ayenibiowo K.O., & Akinbode, G. A. (2011). Psychopathology of Bullying and emotional abuse among school children. *IFE Psychologia*, 19(2), 127-142. doi: 10.4314/ifep.v19i2.69517
- Bridgeland, J. M, Dilullo, J. J. & Balfanz, R. (2009). *On the Front Lines of Schools: Perspectives of Teachers and Principals on the High School Dropout Problem*. Retrieved from <http://eric.ed.gov/?id=ED509755>.
- Crowder, K (2003). Neighborhood Distress and School Dropout: The Variable Significance of Community Context. *Social Science Research*, 32(4), 659-698. doi: 10.1016/s0049-089x(03)00035-8
- Donnelly L. (2015). *Neighborhood Disadvantage and School Dropout: A Multilevel Analysis of Mediating Contexts* [Unpublished doctoral dissertation]. The State University of New Jersey, New Brunswick, NJ, USA.
- Dejung, J., & Kenneth, D. (1986). *High School Teachers and their Students' Attendance. Final Report*. Eugene, OR: Center for Educational Policy and Management: College of Education, University of Oregon.
- Federal Republic of Nigeria (2013). *National Policy on Education*. (6th edition). Lagos: NERDC Press.
- Garry, V. C. (2015). *The Effect of Anxiety on the Course and Career Choice of High School Students* [Unpublished doctoral dissertation]. Drexel Universit, Philadelphia, PA, USA.

- Gregory, A., & Fan, X. (2011). Perceived prevalence of teaching and bullying predicts high school dropout rates. *Journal of Educational Psychology*, 105(1), 138-149. doi: 10.1037/a0030416
- Hembree, R. (2008). Correlates causes, effects and treatment of test anxiety. *Review of Educational Research*, 58(1), 47-77. doi: 10.3102/00346543058001047
- Johnson, S. L. (2013). The role of bystander perceptions and school climate in influencing victims' responses to bullying: to retaliate or seek support? *Journal of Criminology*, 10, 41-55
- Loukas, A. (2006). Examining school climate effects. *Journal of Research on Adolescence*, 16(3), 491-502. doi: 10.1111/j.1532-7795.2006.00504
- Mildred, C. (1954). Causes of premature leaving from grammar schools. *British Journal of Psychology*. 24(3), 129-141. doi: 10.1111/j.2044-8279.1954.tb02891
- Narayanan K., & Murphy S. E. (2017). Conceptual framework on workplace deviance behaviour: A review. *Journal of Human Values*, 23(3), 218-233. doi: 10.1177/0971685817713284
- Ormrod, J. E. (2019). *Human learning*. (8th Ed.). New Jersey: Pearson
- Rosenberg, M. (1960). *Attitude organization and change: an analysis of consistency among attitude components*. New Heaven: Yale University Press.
- Udo, E. (2005). *School Challenges and Students' Academic Achievement in Chemistry in Uyo Local Government Area* [Unpublished doctoral PGDE Project], University of Uyo, Uyo.
- William H. (1971). Personality differentials between lower division dropouts and stay-ins. *Journal of College Student Personnel*, 3(2), 31-39.



Risks of Social Networks for Minors: An Exploratory, Descriptive and Mixed-Methodology Study

Noelia Gutiérrez Martín ^a, & Eva Ordóñez Olmedo ^b

Received: 21 August 2020 • Accepted: 10 October 2020

Abstract: Social networks have revolutionized the way people communicate. They have been a source of opportunities, but also risks. The minors are a group of consumers of this type of network, which, due to their characteristics of not having completed their maturity, are a group to which dangerous situations can especially affect. The problems that affect minors in their use of social networks can affect them as victims, but also as offenders, leading them to commit actions of doubtful morality or even legality. This study, of an exploratory, descriptive nature and a mixed methodology, tries to understand if minors are breaking the law in their internet usage habits, or if, on the contrary, the consequences of their actions on social networks are not known. The knowledge of this information can be of interest in the processes of formation of the teachers of primary and secondary education, so much the initial one, in the university world, like continuous.

Key-Words: social networks, social media, adolescents, cybercrime, habits, teaching training.

1. Introduction

Since the Internet appears, its use has increased exponentially, so it has reached a usual and continued domestic use in our days. This increase has mainly occurred thanks to two fundamental pillars: the evolution of hardware

^a Catholic University 'Santa Teresa de Jesús' of Ávila (Spain) ^b Loyola University Andalusia (Spain)  ORCID 0000-0003-3608-8262. Correspondence: Noelia Gutiérrez Martín, Centro de Proceso de Datos, Universidad Católica de Ávila "Santa Teresa de Jesús", C/Canteros, S/N, 05005 Ávila, Spain. noelia.gutierrez@ucavila.es

(devices and physical networks), and the evolution in quantity and quality of the applications and functionalities offered to the user.

At home, the use of the Internet by minors during the period of confinement due to Covid-19 has increased considerably and it continues that way, covering almost all population, even the earliest ages.

We can find a lot of applications on the Internet, but Social Networks are the most used and they have more power in changing society.

With this research, an approach to the reality of the use made by the child-youth population of this tool is intended; in which new technologies are combined with the way of communicating and relating; and that, therefore, it can affect their development, both in the short and long term.

1.1. Social Networks

A social network is a space in which different individuals can interact through their public or private profiles, which may or may not represent them, and which are defined employing a series of personal data, a state, and certain information, including photographs (Arredondo, 2020).

Social networks take up much of the time that children spend on the Internet: 59% on average according to the study of (Casas, Ruiz-Olivares & Ortega-Ruiz, 2013) being 30% in children between 10 and 13 years, and reaching 82% in children between 13 and 16 years.

56% of minors have a social media profile according to (Garmendia, Garitaonandia, Martínez & Casado, 2011). Digital natives do not have profiles in different social media because they feel FORCED to have it, but simply because in their majority they do not understand life without it. The possibilities that social media offer them are very numerous and it is also natural for children, just like having an email address or having a national ID.

Social networks offer to minors see themselves as content generators, having the ability to create a new identity with they are comfortable with and the possibility of being able to share information with a multitude of friends, and these are some of the characteristics that have made that the use of social media is so popular among them (Herrero-Diz, Ramos-Serrano & Nó, 2016) indicated that the child has now gone from being a content consumer to be a content creator, especially multimedia.

Faced with this positive aspect of social media, we must also talk about how social media can provide a place for several of the problems we are referring to. The Internet use to be the way cyberbullying is practiced. One of the worst threats that can be made to persons of the ages understudy is to denigrate their image and spread it among a large audience. Social media are one of the most important sources of personal information collection of minors, whether for marketing or purely malicious purposes, due to minors usually expose in them their entire lives.

Video games are considered the easiest way for adults to establish contact with minors for inappropriate purposes, such as grooming (Lindín, Serrat & Jardí, 2020). They cause a certain dependence since they continually want to see what their friends do and expose what they do to keep alive their virtual profile. The digital identity can be defined as a compendium of information about a person or an organization exposed on the Internet (personal data, images, records, news, comments, etc.) that make up the identity of the person in the digital space (INTECO, 2012).

1.2. Risks in Social Networks

Social media have opened a world of possibilities for communication and personal development, but if they are used improperly, it can be a potentially dangerous tool for those who do not know how to use them correctly. This is the case of minors, either due to ignorance or due to their age-related bravery, in which lack of maturity becomes a factor that increases exposure to this type of risk behavior.

The main risks faced by the child and youth population in their use of social networks are:

- Defamation, being one of its most aggressive aspects of cyberbullying.
- Use of the image to exploit it sexually.
- Contact with inappropriate people who can be taken to the real plane.

Sometimes they can be adults with sexual intentions, which is known as grooming.

- Impersonation.
- Commercial use of the image or personal data.
- Obtaining personal data for frauds.

Studies such as (Ramos-Soler, López-Sánchez, & Torrecillas-Lacave, 2018) treat adolescents' perception of risk as "the ability to detect, identify and react to problematic situations when surfing the internet" and the basis of this perception is that minors know the dangers they are exposed to on the internet. There are numerous relevant investigations such as (Garitaonandia, Karrera, & Larrañaga, 2019) about the existence of this knowledge.

However, despite knowing the risks, most of the children have at least a profile on social media. Most of them have it as private (the average of those who have it as such according to (Garmendia, Garitaonandia, Martínez & Casado, 2011), is 67% above European data, and only 9% of them shows personal data such as address or the telephone, although they do include more than two aspects that allow to identify them. Some minors even have more than one profile on social networks 49.2% have two or three accounts, another 20.3% said up to four (De Frutos-Torres & Marcos-Santos, 2017). The identification data that is most shown is their photo, in which it can be identified 65.4% followed by the last name 49.7%.

Risks not only come from illegal activities but also are covered by legal gaps, which are not recognized in any laws and they don't violate it, as is the deliberated collection of data.

The need to be accepted by others is also transferred to social media. In this case, it is measured by the number of followers, comments, or retweets (it depends on the social network). Like a competition is created among minors for obtaining the greatest possible approvals from the nucleus of friends, as (Ramón, 2015) points out.

One of the main reasons why social media make themselves more attractive to minors is the possibility of developing a personality that they would like to be because nobody can see no one nor check if they are real or if the reality is as they relate.

School cyberbullying, which is well known as cyberbullying, can be defined as the intentional and repeated damage inflicted by a minor or group of minors to another minor through the use of digital media (Mata, 2017).

According to the study of (Tejada, Castaño & Romero, 2019) of children surveyed someone had done or said something he had disliked over the Internet. 9.6% by WhatsApp, Messenger, etc. Social networks 3.8% and email 5.2% fundamentally. This shows how the behaviors of abuse or harassment in the physical world are extrapolated to the virtual world.

(Giménez, Maquillon & Arnaiz, 2015) study's shows that approximately 8% of the children surveyed are recognized to be cyber victims or suffer cyberbullying. In these two groups have been also observed three important questions: they make greater use of ICT; the use is greater in the case of cyberbullies and they also have a greater dependence on these new technologies. "The observers" is identified as a third (Serrate, 2013). The role played by this group of minors, whose percentage can be very high, is so crucial in this kind of harassment, depending on the attitude it adopts, and it can encourage or reduce cyberbullying situations. Similar figures appear in the Save the Children study's (Sastre, 2016), showing as the 6.9% of the children surveyed admit to have suffered cyberbullying (the percentage in girls is being significantly higher 8.5% compared to 5.3% of the boys).

The word "sexting" has its origin from joining two English words: "sex" and "texting", that describe what it is, sex and sending text messages via mobile phone (Fajardo, Gordillo & Regalado, 2013). This word includes a wide variety of behaviors, which although they originate with text messages, they have evolved and branched giving rise to a multitude of acts from simple text messages to other audiovisual content like photos or videos. In addition, the way of dissemination has also changed.

In McLaughlin (2010) sexting is defined as "the practice among teenagers of taking naked or half-naked images of themselves or others, and send them to other teenagers or upload them to websites such as Myspace.com or Facebook.com"

Sexting is a voluntary practice, which is increasing among young people, and one of its worst consequences can be child pornography.

We can find two branches or versions of sexting. In the first one, children make images or recordings in a trusted environment, and they are directed only by one person; in the second one, children make themselves photos with a markedly sexual pose, and these are shared through their social network profiles.

Sexting, which can be an exhibitionism offense, responds to low awareness of the existing risks and an over-confidence by the child (Narvaja & Del Piero, 2016).

Sexting is classified as a crime in the 1/2015 Organic Law, of 30 March, in article 197.7. It regulates the publication of images or audiovisual recordings obtained with the consent of the person but disseminated without it. The second section of article 183 specifically, refers to sexting in minors. Another risk of social networks is identity theft is to impersonate another person to obtain your benefit or cause harm to the other person.

The prolonged exposure to digital content can have two immediate consequences: the first one, access to inappropriate or harmful content for the child and its development (Fernández-Murcia, 2016), and the second, the addiction to this type of content.

Inappropriate content can be understood as all the material perceived by the minor that can be harmful to him (Ministerio de Industria, Energía y Turismo, s.f.). They can find on the Internet too many materials in different formats that can cause harm to the child and may even be within the illegality.

Children's motivations to access inappropriate content, are abundant and usually, they have a common denominator, the curiosity and the need for them to assert themselves as an adult and independent outside the supervision of parents. Also, it is necessary to consider those contents to which minors may be exposed without there having been a request from them: all those that may appear as advertising either within the pages they visit or as pop-up windows.

It is necessary to differentiate between access to harmful contents, which are legal but harmful for the correct personal and social development of minors, and access to illegal contents, which are not allowed by law, and in those cases, children protections can be done by legal ways.

Viral contents, which are accessed by minors usually, have elements that ridicule someone or are violent. Some of them encourage the repetition of them and are usually found on open access platforms such as YouTube. For example, the phenomenon is known as happy slapping (Smith et al., 2008) consists of the recording of videos where a victim is attacked and violently humiliated and then uploaded and shared on the media.

2. Methodology

This study is part of an investigation into the legal repercussions of the actions that minors carry out on social networks, as well as their knowledge of the consequences that they may have on them.

2.1. Objectives and justification.

The main objective is established as know the perception that children have of the consequences of their actions on social networks can have. To reach this general objective, a series of specific objectives have been set.

- A. Inform about the habits of use of minors related to their relationship with new technologies.
- B. Know the opinion of adults whose view is relevant either by profession or because of its proximity to children.

The object of the study is boys and girls between 12 and 16 years old since within these ages they can already have awareness information about the consequences of their actions, in addition to the fact that, from these ages, the use of new technologies are very common among them when it comes to relating. Although there are studies that show that the age of onset in the use of new technologies is earlier, and earlier and earlier, it is not as widespread in individuals younger than this age. On the other hand, it is considered that the law allows the use of social networks from the age of 14, but existing studies show that minors use it earlier.

It is based on the justifying premise that there is a knowledge both by minors and by parents and educators of the risks associated with the use of new technologies, and especially social networks; Although from what is taken from previous studies, this knowledge is not complete, nor does it fully adjust to reality. Associated with these risks there are legal consequences, the degree of knowledge of which approximates that of the risks is neither complete nor real.

2.2. Data analysis.

The Delphi method is used to carry out this study, in which 12 experts in the domain of this research will be surveyed. This qualitative technique is widely used in studies in the Social Sciences, as pointed out (Ortega, 2008) in which it is based on the opinions of those who know the problem that is to be analyzed. It consists of two rounds of questionnaires, a first with 11 free-response questions and a second with 25 short-response questions.

The first of the questionnaires, the open questionnaire, consists of open questions that allow experts to express their opinion freely generating new ideas, as said in (Martínez-García, Padilla-Carmona, & Suárez-Ortega, 2019). The answers obtained from this type of questionnaire are more valuable and complete, although they require more complex processing (Dehar, 2008). The

answers generated in this first questionnaire allowed obtaining a series of key concepts. The second questionnaire is based on those key concepts. This was prepared based on the answers obtained from the first one, with the dual purpose of first, confirming the answers obtained and, secondly, focusing more on the object of study, the awareness of minors of the impact of their actions in social networks. The possible answers to the second questionnaire consisted of assessing the conformity degree with an affirmation by selecting a number from 1 to 5 that was identified as being totally in disagreement or agree according to a Likert scale.

The selection of the experts was based on their training (investigators on minors) or their profession (directors of secondary schools, tutors of public and nonpublic or secondary's schools, social workers, psychologists, lawyers, and the police/policemen).

The first questionnaire was filled out by the different participants of this study in May 2019, and the second one was filled out in November of the same year. The extraction, treatment in the interpretation of the data was done at the end of that month.

3. Results

3.1. Qualitative research.

The first question asked the experts about their perception of the time that children spend on social media. Most of the answers suggest that this time is very high, even excessive. The concepts of "without control or supervision" and "to the detriment of other activities" are also repeated. Some other interesting ideas that appear in the answers to this question are that this same excess of time is also spent in adults and the beginning of access to social media is made from increasingly early ages. It is noted that this use of social media has changed the personal communication paradigm that existed until now.

Then the questionnaire wondered if experts thought that portable devices had overpassed the traditional computer for access by children to social media. The unanimous answer of all of them was affirmative, although in some cases it was clarified that the personal computer was still the preferred tool to do some tasks, like classwork.

Concerning the previous question, they were asked for advantages and disadvantages of using mobile devices to access social media. Among the advantages, the most cited is the possibility of access from anywhere and the easy it could be, which in some cases is expressed as "comfort".

On the side of the disadvantages, the main concern of the experts is that the advantages are becoming a great danger: the ability to access at any time and from any place can translate into a long time of use, which could result in an addiction.

Another of the consequences of the increase of time waste on social media is that children can get to disconnect from reality. The second of the disadvantages that they enumerate is the increase of the lack of control from the families over the children, and it can be the consequence of the own advantages previously mentioned.

Regarding the disadvantages, the normalization of violent, sexist, and racist content is pointed out, which can subsequently transcend online life; and the multiplier effect of actions in social networks, which enhances the impact that aggressions and cyberbullying have.

In contrast, it is pointed out that social networks allow access to more flexible worlds so that people socially excluded or with integration difficulties appear opportunities for socialization with people in similar situations and who otherwise would not get to know them.

The next issue concerns the differences between the relationships that children have in social media than they have in their real life. In the answers, it is cited that they are not real and there is a lack of commitment in them because to comment without putting filters and lying is easier than in offline life. The most repeated is that they do not show their personality, but they create another identity that may resemble what they would like to be, and that sometimes, developing this new virtual identity can lead them to confuse reality.

However, not all the answers point to negative differences (although they are a majority), but it is also said that if they are using social media with care and knowledge they can add to their realities so that they make other types of friendships which they would not do in their offline life and that can even lead them to internationalize contacts, which can be positive so that it allows them to know realities from other places on the planet. It also indicates that in this type of relationship they feel less exposed, and favor anonymity, which on the one hand can favor the adoption of other different identities but can also reinforce theirs in case of situations of insecurity helping them overcome some fears.

The next question was about whether parents know what their children do on a social network. Everyone thinks negatively, highlighting among their opinions that they do not know the applications they use and if they do, they do not know how to use them. Likewise, there is talk of a discourse of panic between parents, an alert about the use of social networks by adolescents who try to control and follow the accounts of their children.

Also question whether research activities that are carried out on social networks can be considered criminal and if they know the consequences that can have. Most experts say they are not aware and aim to itself that there is training by educators and police.

Another interesting aspect to know in this phase is the type of materials that children share in the social networks. Most experts answer children share

audiovisual content, but the answers are not always the same, they talk about photos and personal videos, photos, and videos of influencers, audiovisual material of groups of friends. Among the personal content that they share are also cited moods or personal opinions. Pornography, jokes, and memes are also pointed out as part of the content that children share in their profiles.

As for the request for help, the majority answer is that they do not do it, it is pointed out that it depends on the relationship they have, and that the issue has been discussed as a family; it is noted that it depends on the relationship they maintain with the children and that if the topic has been discussed as a family it is more probably they will ask for help from their parents, siblings or guardians.

Continuing with the issue of the digital identity of minors, the next question asked experts if they think that children give so much importance to their profile that they can misrepresent their image to be more striking the others. Although most think that it is, some also argue that it is not. Among the causes that can argue to create a different personal image is that they seek recognition, which in social media translates into the number of likes, retweets, etc.; They argue that they do not know the dangers that this entails and above all that it sells physical perfection and that it does not have personalities formed so that they can be easily influenced, among other things, by the desire or belonging to a group that is taken as approval of others. They point out that the image is so important that they can build parallel realities in which everything is as they would like it to be.

Finally, the last question is about if they believed, that cyberspace is a place where children can find greater freedom to perform actions of doubtful morality or even legality. Most experts answered affirmatively, some answered that it is no correct and others it depends on the children. The reasons they rely on to defend this claim is that anonymity and believing invincible. The possibility of not being discovered reinforce this type of behavior helped that nobody controls them and therefore can act as they think or feel without feeling that they are going to have immediate consequences for this type of behavior.

3.2. Quantitative investigation.

In the second phase of this methodology, the experts were given a questionnaire with short answer questions, as indicated in the methodology.

The first questionnaire wondered if the parents knew what their children were doing on the internet, and this question was again asked in the second one. The answers confirm that the majority had responded in the first because the 100% of answers indicate that parents do not know what their children do on the social networks.

The next question is whether the minors came for help to their progenitors when a conflicting situation occurred. In this second

questionnaire, this aspect is dealt with in two questions, if having treated the issue as a family influences and if not going to the parents maybe for fear of punishment, since some experts had cited them as reasons for not asking for help. to parents in these situations. Both are contrasted in the second questionnaire under the two questions whose answers appear in Figures 1 and 2.

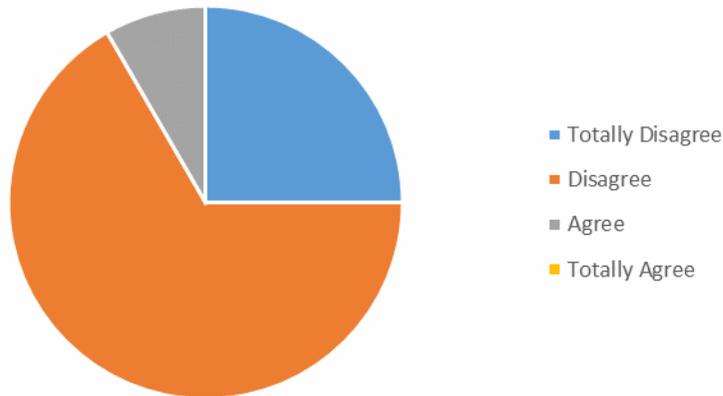


Figure 1. Minors go to parents when they encounter conflicting situations on social networks if the issue has been previously discussed as a family. Own elaboration.

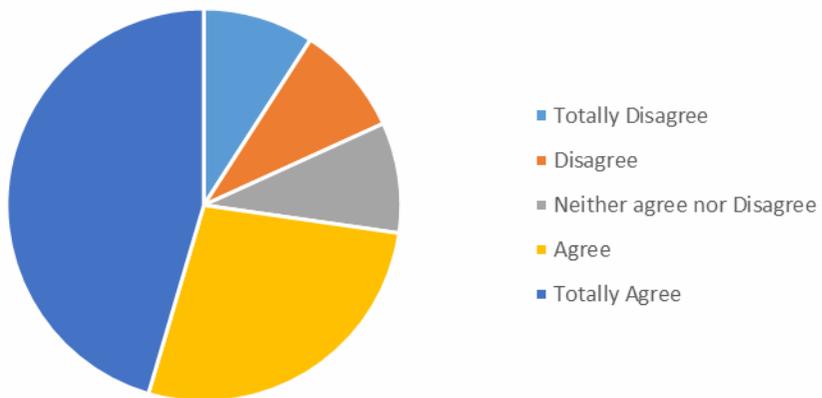


Figure 2. Children fear consulting their parents when they have a problem with social networks in case they are punished. Own elaboration.

In the first questionnaire it was asked if children use mobile devices more for access to social network, and with a similar word they were asked again in the second of the questionnaires, and it can be seen in Figure 3 how the answers in the first one are validated the answers of the first.

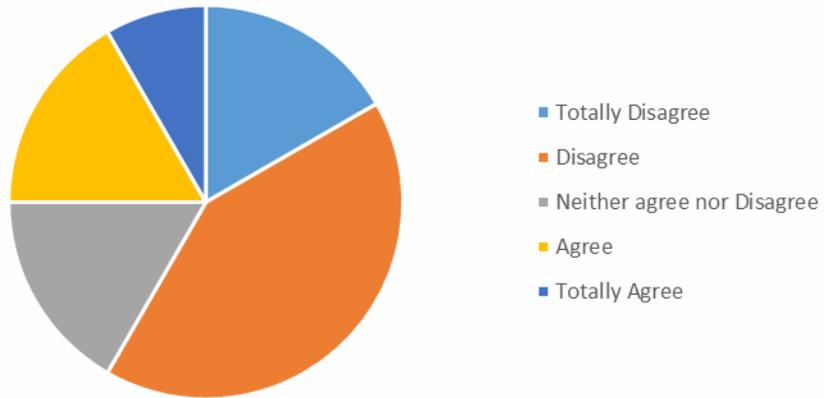


Figure 3. Mobile devices are the preferred tool for minors to access social networks. Own elaboration.

In one of the questions of the first questionnaire, experts were asked about the advantages and disadvantages of mobile devices to access social media, some of them answered about social media, but despite not being the answer that was thought, the content of it was interesting enough to open a new line of study, about the content that children share. It is then raised in the second questionnaire with questions are shown in Figures 4, 5, and 6 and they are confirming the point of view that the expert that exposed.

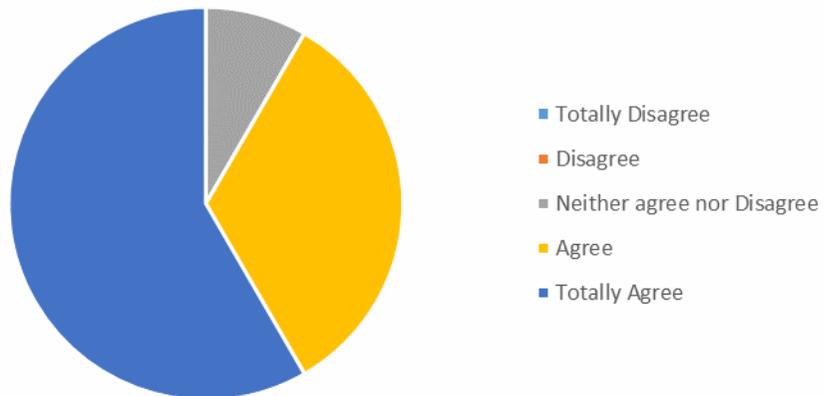


Figure 4. The excess of information and the ease of access to it becomes a problem since minors are not able to discriminate which is truth. Own elaboration.

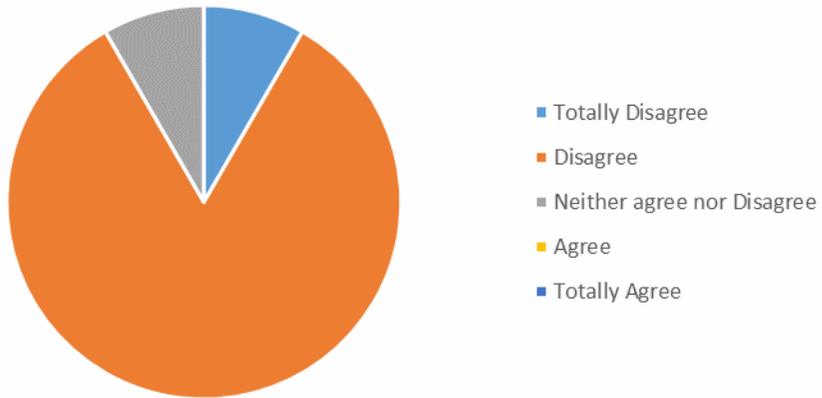


Figure 5. Children often share offensive materials that are funny to them, without stopping to think about who may be harmed. Own elaboration.

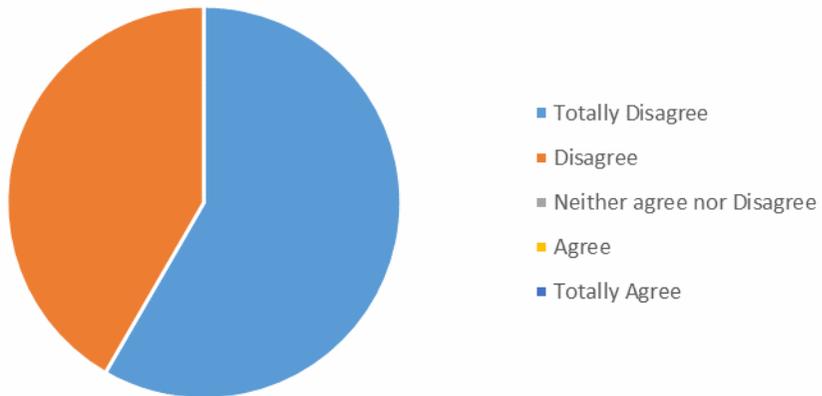


Figure 6. In social networks, content that is not normalized in real life is normalized, such as violent, sexist, or racist. Own elaboration.

In the beginning, questions are asked about online relationships and in the second questionnaire, it was tried to verify some of them. In the case of Figure 7 shows the distribution of responses to the question assessing the relationship that children are among the effects of a lie in social networks and life, be stressed that not be able to validate the idea targeted by one of them, since there is the diversity of opinions.

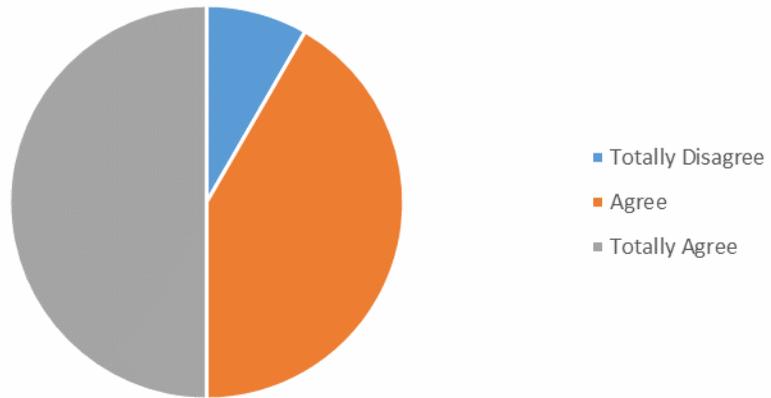


Figure 7. Children do not believe that lying on social networks has the same consequences as lying in real life. Own elaboration.

In this comparison of how to relate offline and online take a specific case, the cyberbullying, and questions relating to the performed Figures 8 and 9 in which the profiles of online and offline stalkers are related, however, the answers to both questions were not determinatives.

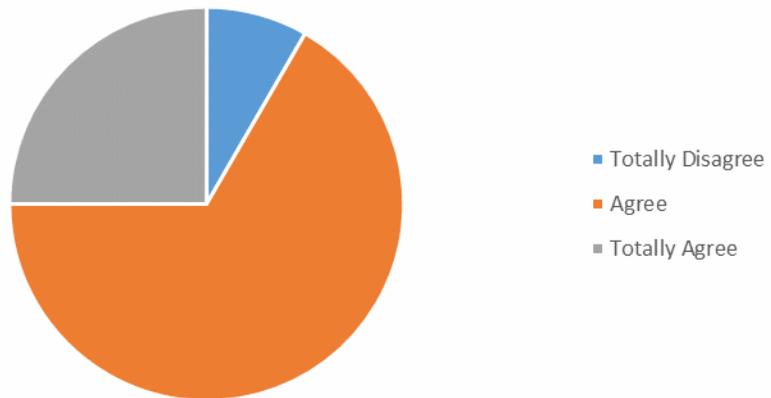


Figure 8. Children who do online harassment are usually the same as those who do it offline. Own elaboration.

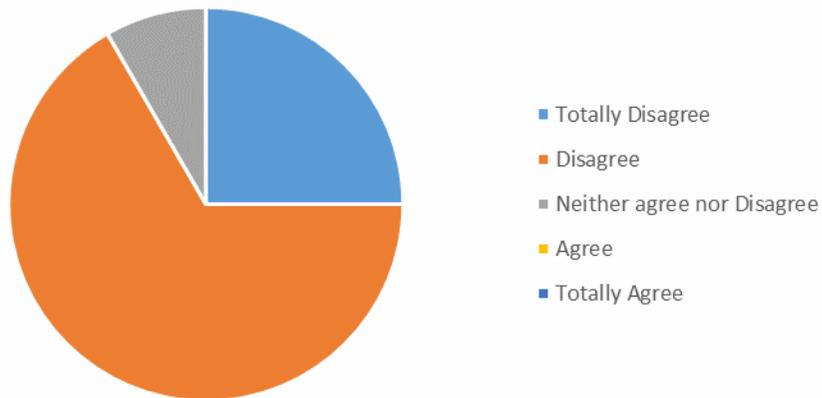


Figure 9. The profile of the online stalker is different from that performed offline. Own elaboration.

In the first questionnaire, the experts mostly talk about the audiovisual content about themselves that they share the most and reaffirm their opinion in the second questionnaire, as can be seen in Figure 10.

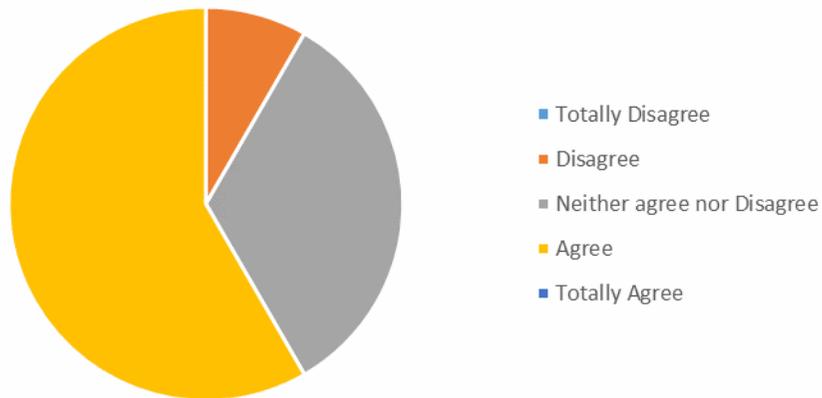


Figure 10. Most of the content that minors share are images and information. Own elaboration.

Regarding the modification of his image in his profiles on social networks, in the first questionnaire, it was stated that this was the case, and the attempt to please the rest was pointed out as a cause. In this sense, several questions are asked to verify this statement. Figure 11 shows whether the project an attractive image and insinuating, whose cause can be found in the hypersexualization of society, validating this claim. The questions represented in Figures 12 and 13 delve into this aspect of youth profiles, asking whether experts think that erotic content is shared by minors and if they use any type

of restrictions when to share it, but as can be seen, there is no conclusive answer to any of them.

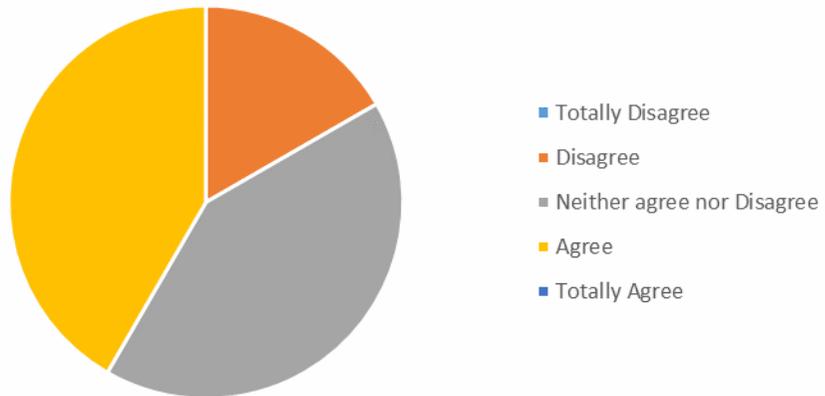


Figure 11. Children are shown in an attractive and insinuating way in social networks, because of the hypersexualization of society. Own elaboration.

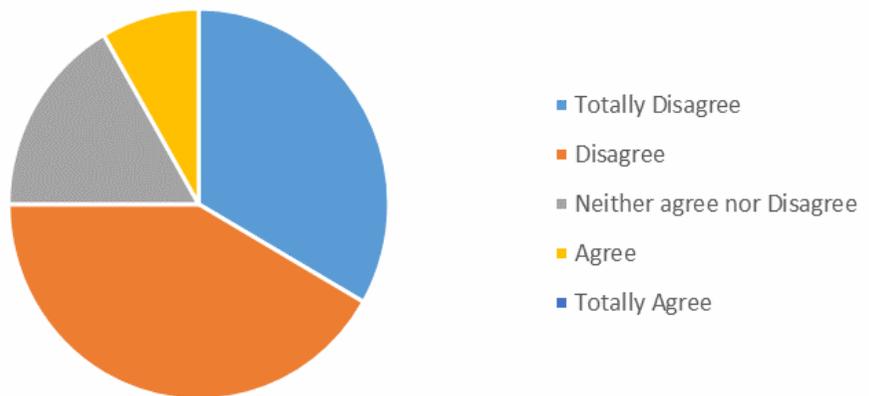


Figure 12. Children share videos of erotic content. Own elaboration.

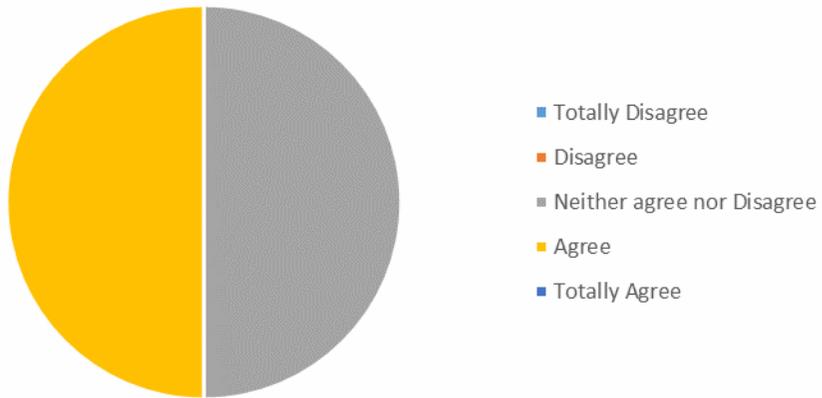


Figure 13. Children share erotic content in which they are the protagonists, but only with people they choose. Own elaboration.

When assessing whether they are aware of the consequences of their actions and whether cyberspace is a place where they have greater freedom to carry out actions that could be considered criminal, various statements are made in the second questionnaire. The first one, reflected in Figure 14, deals with whether the concept of digital identity is internalized in them. Figure 15 shows the results of the question on the concept of cyberbullying, which are mostly Accordingly.

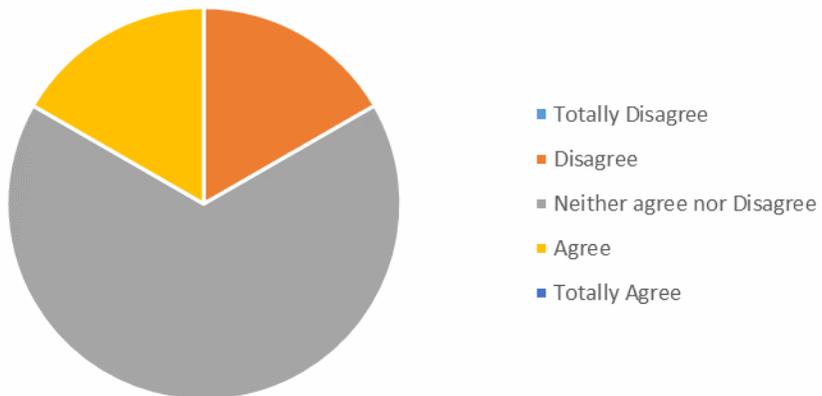


Figure 14. The concept of digital identity is not correctly assimilated in minors and therefore, the faults they commit against it do not understand them as such. Own elaboration.

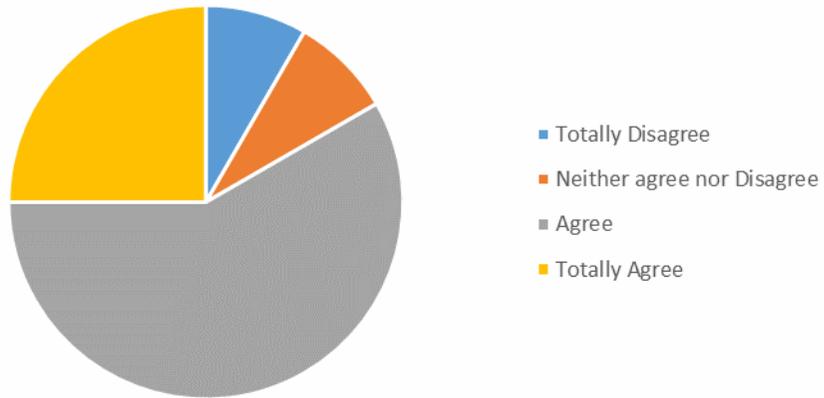


Figure 15. Minors do not raise cyberbullying to the category of crime. Own elaboration.

There is a further impact on whether adolescents are aware of the dangers associated with the use of social networks in the question whose results can be seen in Figure 16, complemented by the statement observed in Figure 17, which also deals with whether they know the consequences that the actions carried out in these media may have. The answers to these questions show a greater disagreement with these statements.

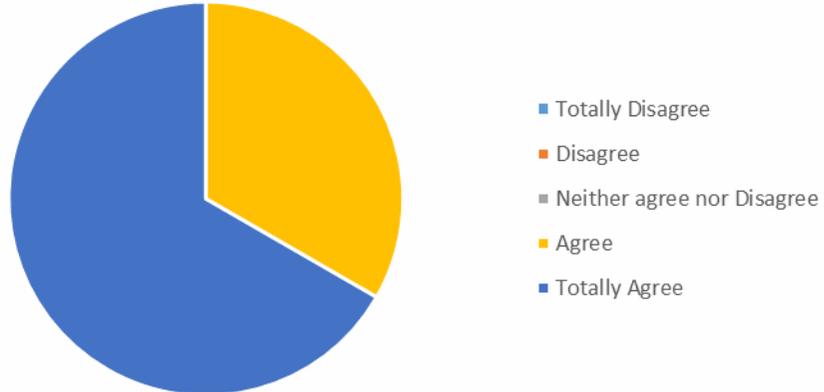


Figure 16. Children are aware of the existing dangers related to the management of social networks. Own elaboration.

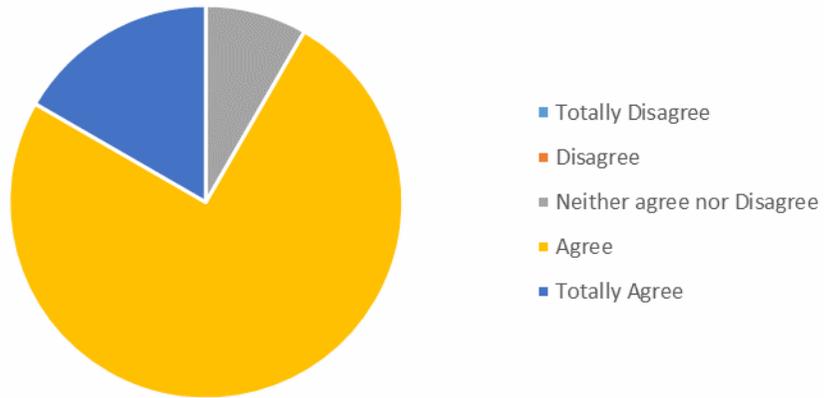


Figure 17. Children know the consequences of their actions on the internet, and therefore, on social networks. Own elaboration.

In Figure 18 the results are plotted on whether children are aware that anonymity presumed in social networks is not that real. Experts have disagreed with this ruling by 91.67%. The next question, whose answers are shown in Figure 19 and which are in general agreement with what has been stated, addresses one of the most important aspects of this study, which is the assessment of whether minors have a sufficiently formed conscience to know if what you are doing is correct and consequently it may have certain repercussions for him/her.

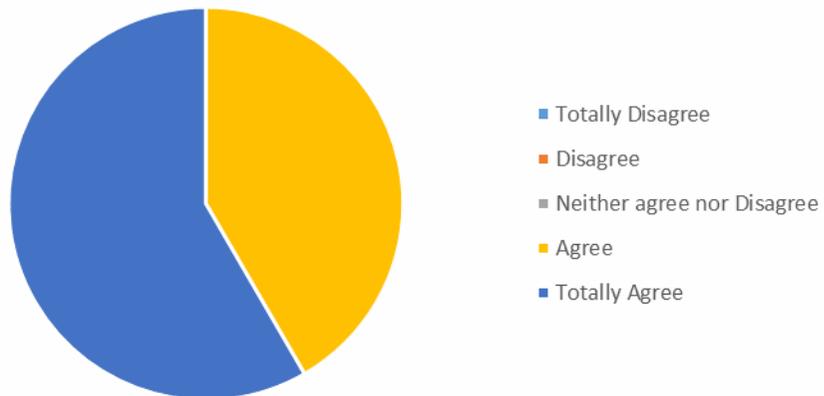


Figure 18. Minors know that anonymity on the Web is not such, but that in most cases they can be located with greater or lesser difficulty. Own elaboration.

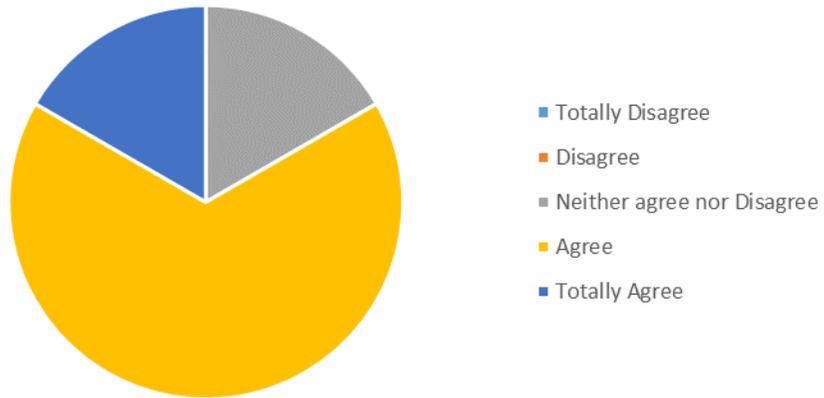


Figure 19. Children do not have the conscience formed to be able to discern what is right within the range of opportunities offered by social networks. Own elaboration.

Experts all agree with the claim that minors can confuse a crime like identity theft with a joke, as can be seen in Figure 20. Similar responses, reflected in Figure 21, are obtained by asking them if they think that there is socially accepted criminal conduct, using, for example, downloads of the copyrighted material.

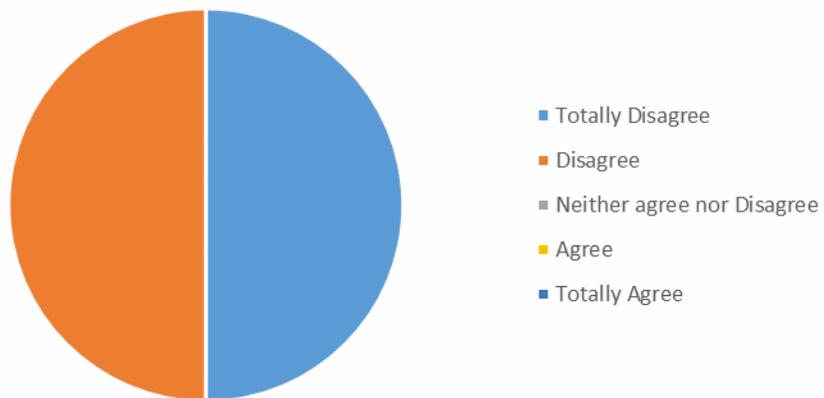


Figure 20. Minors can confuse phishing with a joke they make to a friend. Own elaboration.

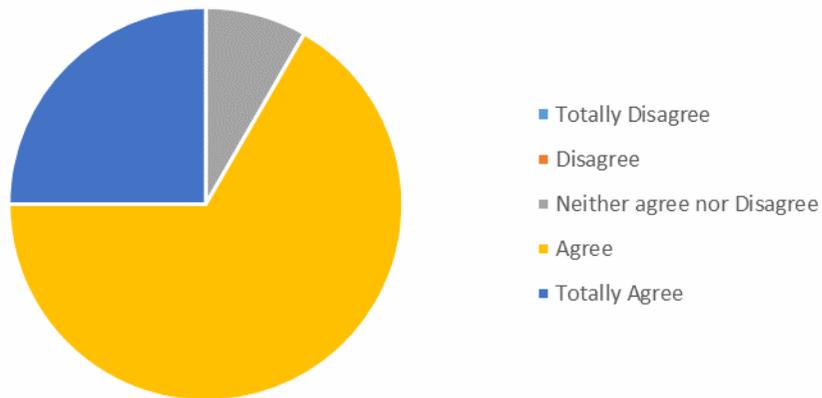


Figure 21. Sometimes, certain criminal behaviors in social networks are accepted socially, such as the downloading of the copyrighted material. Own elaboration.

In the first questionnaire, one of the experts explained that one of the problems that adolescents faced. It is the rapid spread of what they write or show on social networks. For this reason, in this second questionnaire, it was asked if the minors were aware of this special characteristic of these media, not drawing a conclusive answer, as seen in Figure 22.

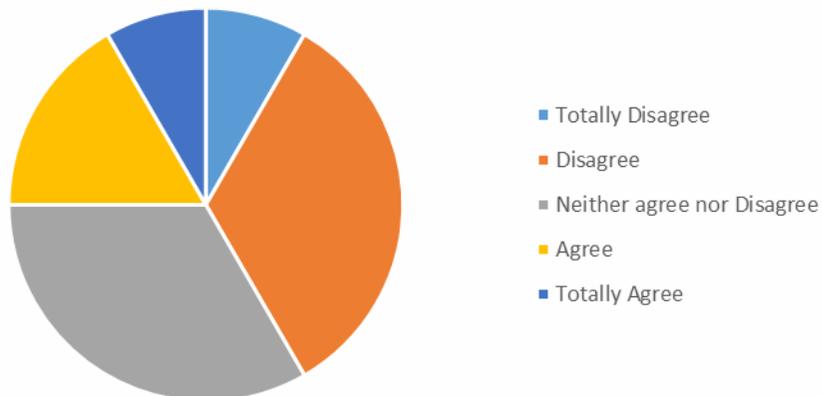


Figure 22. Children are aware of the easy and quick spread of their opinions and content through social networks. Own elaboration.

To finish the second questionnaire, questions were asked about the content that minors upload to social networks. The results shown in Figure 23 denote that they are not aware of the risks of uploading certain content; while in Figure 24, the responses on whether they ask permission to upload content from others are indicated, with the opinion of the experts being unanimous.

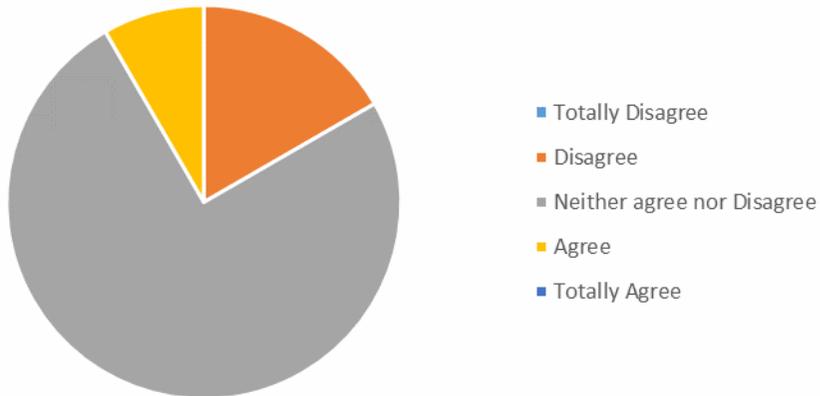


Figure 23. Children know how dangerous it is to upload certain content to social networks. Own elaboration.

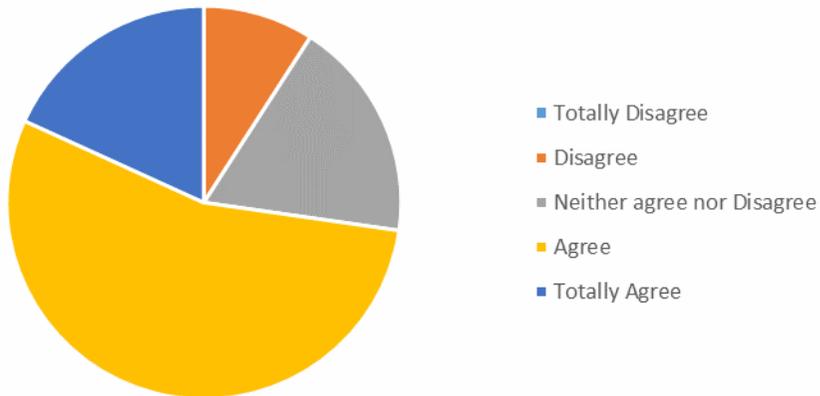


Figure 24. Children ask permission when sharing content from others on social networks. Own elaboration.

4. Discussion and Conclusions

This study has tried to approach the reality of the use that minors make of social media. It tried to check if this use is made from the knowledge of the consequences that these actions can have. The different contributions of the experts have allowed endorsing the hypotheses of the study, in which minors are not aware that some of their habits can lead to acts that can be considered criminal.

The proliferation of mobile devices, which are preferred by minors for access to social media, that confirm the hypothesis advocated in (Martínez-Pastor, 2019), is one of the factors, according to expert opinion, that may have

increased the lack of control adults have over minors concerning the social network.

The family is one of the keys in the relationship between minors and social media, and how children face the problems that may arise to them. The lack of parental control may be due to the generational difference in the management of new technologies, which even causes mistrust and fear in parents who can get spy on the profiles of their children on social media because they try to control and protect them.

The need for the topic will be treated in the family is highlighted (Martínez-Pastor, 2019), because this can create a climate of trust in which minors can feel protected and that will allow them to ask their parents when there is a problem without fear of being punished.

Another important point is the concept of digital identity. It seems to minors do not have properly assimilated. Their profiles tend more to a need to please others and to be accepted by the group than to reaffirm their personality. This trend is similar for boys and girls, although their strategies and the aspects to which they give more relevance are different. Both bases their profile on sharing photos, videos, stats, opinions, but they only show those that can form a personality more accepted by others. They do not worry about the continuity of their digital identity throughout their life.

The contents they access in social media are mainly made up of their images and videos, but of their friends or people, they follow and can take as a model, such as influencers. Among the content they share about themselves, it can be found erotic content, even personal, although minors are more cautious about distributing it. There are some contents that in offline life would not be so normalized but in social media, they do not acquire the seriousness they have, such as violent, sexist, racist, or simply offensive content for others. This kind of contents will have an impact on the development of children, who do not have their formed personality.

Minors do some risk behaviors because they are not aware of the consequences. If these behaviors are analyzed in detail, they may even become constitutive of crime, but they are common and socially acceptable for them. The upload of erotic content that can lead to a crime of sexting, or the distribution of content without asking permission or that offends someone can go against the right to the image, data protection or even copyright. Furthermore, the rapid spread of everything they publish can be considered an aggravation.

One of the main conclusions of this study is that children are not aware of the risks that inappropriate behavior in social media has. They have received training on it, but they are not able to transfer that knowledge to a modification of their behavior patterns. Perhaps one of the reasons why they have not internalized the terms and habits, in which they are formed, is that they do not pay attention to training, or do not understand it. Studies such as

(Tejada, 2019) indicate that minors said that only 12.7% have received training. There are concepts that they do not yet, handle clearly as digital identity, and they are not aware that some actions are more serious than they think, like phishing or cyberbullying are, although they have received training in recent years. Besides, they do not yet have the personality sufficiently formed to discern between what can be a small lack of a crime, and they find it difficult to know where is the line that they do not have to cross.

Therefore, it remains to be reviewed how this training can be transformed into awareness, so that the concepts that are explained to the child, can be into a change in usage habits. Also, this training focuses on the dangers that children face when they do some actions and that can make them a victim of some abuses through social media, but they do not point out how when they do some activities on social media they become to break the law and the legal consequences that it may have for them.

To complete these conclusions, it would be interesting to be able to extract patterns by age and sex, such as those that appear in the studies of (Tejada, Castaño & Romero, 2019) and (Sanz et al., 2018) in which gender differences are reflected; and study if some of these infractions are related to any of these two factors, to be able to apply a more suitable and directed training according to the needs of each group.

References

- Arredondo, C. (2020). La red social Facebook como y de control. Una mirada desde la filosofía de Foucault. *Sincronía*, 77, 165-180. doi: 10.32870/sincronia.axxiv.n77.8a20
- Mata, L. (2017). Aspectos jurídicos del acoso y ciberacoso escolar. *Revista de Estudios de Juventud*, 15, 13-30
- Casas, J., Ruiz Olivares, R., & Ortega-Ruiz, R. (2013). Validation of the Internet and Social Networking Experiences Questionnaire in Spanish Adolescents. *International Journal of Clinical and Health Psychology*, 13, 40-48, doi: 10.1016/S1697-2600(13)70006-1
- Dehar, D.S. (2008). *Metodología de la Investigación*. Madrid: Ed. Shalom.
- De-Frutos-Torres, B. & Marcos-Santos, M. (2017). Disociación entre las experiencias negativas y la percepción de riesgo de las redes sociales en adolescentes. *El Profesional de la Información*, 26(1), 88-96. doi: 10.3145/epi.2017.ene.09
- Fajardo, M., Gordillo, M., & Regalado, A. (2013). Sexting: Nuevos usos de la tecnología y la sexualidad en adolescentes. *International Journal of Development and Educational Psychology*, 1(13), 521-534.

- Fernández-Murcia, A. (Abril de 2016). La iniciación del menor a la infracción 2.0. Uso responsable de las TIC. *Revista sobre la Infancia y la Adolescencia*, 10, 35-53.
- Garitaonandia, C., Karrera, I., & Larrañaga, N. (2019). La convergencia mediática, los riesgos y el daño online que encuentran los menores. *Doxa Comunicación*, 28, 179-200.
- Garmendia, M., Garitaonandia, C., Martínez, G., & Casado, M. (2011). *Riesgos y seguridad en Internet: Los menores españoles en el contexto europeo. Resultados de la encuesta de EU Kids Online a menores de entre 9 y 16 años y a sus padres y madres*. Seville: Observatorio de la Infancia.
- Giménez, A., Maquillon, J., & Arnaiz, P. (2015). Usos problemáticos y agresivos de las TIC por parte de adolescentes implicados en cyberbullying. *Revista de Investigación Educativa*, 33(2), 335-351.
- Herrero-Diz, P., Ramos-Serrano, M., & Nó, J. (2016): Los menores como usuarios creadores en la era digital: del prosumer al creador colaborativo. Revisión teórica 1972-2016". *Revista Latina de Comunicación Social*, 71, 1301-1322, doi: 10.4185/RLCS-2016-1146
- INTECO (2012). *Guía para Usuarios. Identidad Digital y Reputación Online*. Madrid: Ministerio de Industria, Energía y Turismo.
- Lindín, C., Serrat Antolí, N., & Jardí, A. (2020). Educación sobre medios digitales: imprescindible para incentivar las interacciones positivas. In *I Conferència Internacional de Recerca en Educació - IRED'19* (pp.513-528). Barcelona: Institut de Recerca en Educació (IRE-UB).
- Martínez-García, I.; Padilla-Carmona, M.T. y Suárez-Ortega, M. (2019). Aplicación de la metodología Delphi a la identificación de factores de éxito en el emprendimiento. *Revista de Investigación Educativa*, 37(1), 129-146, doi: 10.6018/rie.37.1.320911
- Martínez-Pastor, E.; Catalina-García, B. y López-de-Ayala-López, M.C. (2019). Smartphone, menores y vulnerabilidades. Revisión de la literatura. *Revista Mediterránea de Comunicación*, 10(2), 257-268, doi: 10.14198/medcom2019.10.2.5
- McLaughlin, J. (2010). Crime and Punishment: Teen Sexting in context. *Penn State Law Review*, 115(1), 136-180.
- Ministerio de Industria, Energía y Turismo. (s.f.). *MonoFigura. Acceso a Contenidos Inapropiados*. Madrid: Author.
- Ministerio del Interior. (2014). *Encuesta sobre Hábitos de Uso y Seguridad de Internet de Menores y Jóvenes en España*. Madrid: Author.
- Narvaja, M., & Del Piero, J. (2016). Prácticas Juveniles Éxtimas: Sexting y Vlogging. *Aposta. Revista de Ciencias Sociales*, 69, 239-270.
- Ortega, F. (2008). El método Delphi. Prospectiva en Ciencias Sociales a través del análisis de un caso práctico. *Revista EAN*, 64, 31-44

- Ramón, F. (2015) Menores y Redes Sociales: Cuestiones Legales. *Revista sobre la Infancia y la Adolescencia*, 8. 33-43, doi: 10.4995/reinad.2015.3300
- Ramos-Soler, I., López-Sánchez, C., & Torrecillas-Lacave, T. (2018). Percepción de riesgo online en jóvenes y su efecto en el comportamiento digital. *Comunicar*, 56, 71-79, doi: 10.3916/C56-2018-07
- Sanz, E., Alonso, R.A., Saenz de Jubera, M., Ponce de León, A. & Valdemoros, M.A. (2018). Ocio, Redes Sociales y Estudiantes Españoles. *Educación XXI*, 21(2). 59-78, doi: 10.5944/educXXI.19538
- Sastre, A. (2016). *Yo a eso no juego. Bullying y ciberbullying en la infancia*. Madrid: Save the Children.
- Serrate, S. (2013). El educador social ante el fenómeno del ciberbullying. In S. Torio López, O. García Pérez, J. Peña Calvo, & C. Fernández García (eds.), *Crisis Social y el Estado del Bienestar: Las Respuestas de la Pedagogía Social* (pp. 690-697). Oviedo: Universidad de Oviedo. Servicio de Publicaciones.
- Smith, J., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: its nature and impact in secondary school pupils. *Journal of Child Psychology & Psychiatry*, 49(4), 376-385.
- Tejada, E., Castaño, C. & Romero, A. (2019) Los hábitos de uso en las redes sociales de los preadolescentes. RIED. *Revista Iberoamericana de Educación a Distancia*, 22(2), 119-133, doi: 10.5944/ried.22.2.23245.

