Online ISSN : 2249-460X
Print ISSN : 0975-587X
DOI : 10.17406/GJHSS

Global Journal

of Human Social Sciences: G

Linguistics & Education



Special Educational Needs (SEN)

The Australian National Curriculum

Highlights

Research on the MPA Education

Aerospace English Academic Writing Class

Discovering Thoughts, Inventing Future

VOLUME 23 ISSUE 2 VERSION 1.0

© 2001-2023 by Global Journal of Human Social Sciences, USA

Volume 23 Issue 10 was originally issued as G2

Global Journal of Human-Social Science: G
Linguistics & Education

Global Journal of Human-Social Science: G
Linguistics & Education

Volume 23 Issue 2 (Ver. 1.0)

Open Association of Research Society

© Global Journal of Human Social Sciences. 2023.

All rights reserved.

This is a special issue published in version 1.0 of "Global Journal of Human Social Sciences." By Global Journals Inc.

All articles are open access articles distributed under "Global Journal of Human Social Sciences"

Reading License, which permits restricted use. Entire contents are copyright by of "Global Journal of Human Social Sciences" unless otherwise noted on specific articles.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without written permission.

The opinions and statements made in this book are those of the authors concerned. Ultraculture has not verified and neither confirms nor denies any of the foregoing and no warranty or fitness is implied.

Engage with the contents herein at your own risk.

The use of this journal, and the terms and conditions for our providing information, is governed by our Disclaimer, Terms and Conditions and Privacy Policy given on our website http://globaljournals.us/terms-and-condition/menu-id-1463/

By referring / using / reading / any type of association / referencing this journal, this signifies and you acknowledge that you have read them and that you accept and will be bound by the terms thereof.

All information, journals, this journal, activities undertaken, materials, services and our website, terms and conditions, privacy policy, and this journal is subject to change anytime without any prior notice.

Incorporation No.: 0423089
License No.: 42125/022010/1186
Registration No.: 430374
Import-Export Code: 1109007027
Employer Identification Number (EIN):
USA Tax ID: 98-0673427

Global Journals Inc.

*(A Delaware USA Incorporation with "Good Standing"; **Reg. Number: 0423089**)*

Sponsors: Open Association of Research Society
Open Scientific Standards

Publisher's Headquarters office

Global Journals® Headquarters
945th Concord Streets,
Framingham Massachusetts Pin: 01701,
United States of America
USA Toll Free: +001-888-839-7392
USA Toll Free Fax: +001-888-839-7392

Offset Typesetting

Global Journals Incorporated
2nd, Lansdowne, Lansdowne Rd., Croydon-Surrey,
Pin: CR9 2ER, United Kingdom

Packaging & Continental Dispatching

Global Journals Pvt Ltd
E-3130 Sudama Nagar, Near Gopur Square,
Indore, M.P., Pin:452009, India

Find a correspondence nodal officer near you

To find nodal officer of your country, please email us at *local@globaljournals.org*

eContacts

Press Inquiries: *press@globaljournals.org*
Investor Inquiries: *investors@globaljournals.org*
Technical Support: *technology@globaljournals.org*
Media & Releases: *media@globaljournals.org*

Pricing (Excluding Air Parcel Charges):

Yearly Subscription (Personal & Institutional)
250 USD (B/W) & 350 USD (Color)

Editorial Board

Global Journal of Human-Social Science

Dr. Arturo Diaz Suarez

Ed.D., Ph.D. in Physical Education Professor at University of Murcia, Spain

Dr. Prasad V Bidarkota

Ph.D., Department of Economics Florida International University United States

Dr. Alis Puteh

Ph.D. (Edu.Policy) UUM Sintok, Kedah, Malaysia M.Ed (Curr. & Inst.) University of Houston, United States

Dr. André Luiz Pinto

Doctorate in Geology, PhD in Geosciences and Environment, Universidade Estadual Paulista Julio de Mesuita Filho, UNESP, Sao Paulo, Brazil

Dr. Hamada Hassanein

Ph.D, MA in Linguistics, BA & Education in English, Department of English, Faculty of Education, Mansoura University, Mansoura, Egypt

Dr. Asuncin Lpez-Varela

BA, MA (Hons), Ph.D. (Hons) Facultad de Filolog?a. Universidad Complutense Madrid 29040 Madrid Spain

Dr. Faisal G. Khamis

Ph.D in Statistics, Faculty of Economics & Administrative Sciences / AL-Zaytoonah University of Jordan, Jordan

Dr. Adrian Armstrong

BSc Geography, LSE, 1970 Ph.D. Geography (Geomorphology) Kings College London 1980 Ordained Priest, Church of England 1988 Taunton, Somerset, United Kingdom

Dr. Gisela Steins

Ph.D. Psychology, University of Bielefeld, Germany Professor, General and Social Psychology, University of Duisburg-Essen, Germany

Dr. Stephen E. Haggerty

Ph.D. Geology & Geophysics, University of London Associate Professor University of Massachusetts, United States

Dr. Helmut Digel

Ph.D. University of Tbingen, Germany Honorary President of German Athletic Federation (DLV), Germany

Dr. Tanyawat Khampa

Ph.d in Candidate (Social Development), MA. in Social Development, BS. in Sociology and Anthropology, Naresuan University, Thailand

Dr. Gomez-Piqueras, Pedro

Ph.D in Sport Sciences, University Castilla La Mancha, Spain

Dr. Mohammed Nasser Al-Suqri

Ph.D., M.S., B.A in Library and Information Management, Sultan Qaboos University, Oman

Dr. Giaime Berti

Ph.D. School of Economics and Management University of Florence, Italy

Dr. Valerie Zawilski

Associate Professor, Ph.D., University of Toronto MA - Ontario Institute for Studies in Education, Canada

Dr. Edward C. Hoang

Ph.D., Department of Economics, University of Colorado United States

Dr. Intakhab Alam Khan

Ph.D. in Doctorate of Philosophy in Education, King Abdul Aziz University, Saudi Arabia

Dr. Kaneko Mamoru

Ph.D., Tokyo Institute of Technology Structural Engineering Faculty of Political Science and Economics, Waseda University, Tokyo, Japan

Dr. Joaquin Linne

Ph. D in Social Sciences, University of Buenos Aires, Argentina

Dr. Hugo Nami

Ph.D.in Anthropological Sciences, Universidad of Buenos Aires, Argentina, University of Buenos Aires, Argentina

Dr. Luisa dall'Acqua

Ph.D. in Sociology (Decisional Risk sector), Master MU2, College Teacher, in Philosophy (Italy), Edu-Research Group, Zrich/Lugano

Dr. Vesna Stankovic Pejnovic

Ph. D. Philosophy Zagreb, Croatia Rusveltova, Skopje Macedonia

Dr. Raymond K. H. Chan

Ph.D., Sociology, University of Essex, UK Associate Professor City University of Hong Kong, China

Dr. Tao Yang

Ohio State University M.S. Kansas State University B.E. Zhejiang University, China

Mr. Rahul Bhanubhai Chauhan

B.com., M.com., MBA, PhD (Pursuing), Assistant Professor, Parul Institute of Business Administration,
Parul University, Baroda, India

Dr. Rita Mano

Ph.D. Rand Corporation and University of California, Los Angeles, USA Dep. of Human Services, University of Haifa Israel

Dr. Cosimo Magazzino

Aggregate Professor, Roma Tre University Rome, 00145, Italy

Dr. S.R. Adlin Asha Johnson

Ph.D, M. Phil., M. A., B. A in English Literature, Bharathiar University, Coimbatore, India

Dr. Thierry Feuillet

Ph.D in Geomorphology, Master's Degree in Geomorphology, University of Nantes, France

Contents of the Issue

i. Copyright Notice
ii. Editorial Board Members
iii. Chief Author and Dean
iv. Contents of the Issue

1. The Implementation of Genre-Based Teaching Method in Aerospace English Academic Writing Class. *1-8*
2. 3D Resources for Visually Impaired Students. *9-21*
3. Research on the MPA Education and Training Model with "Internal Structure" Teaching Perspective as the Core and "Double Loop" as the Main Body. *23-29*
4. Views of Students of ASPETE Athens on the Connection between Theory and Practice in the Context of their Microteaching. *31-39*
5. The Evaluation of the Educational Project in Students with Special Educational Needs (Sen) in Regular School. *41-50*
6. The Influence of Augmented Reality Technology on the Learning Interest, Achievement of Learning Goals and Cognitive Load of Middle School Students. *51-56*
7. The Australian National Curriculum: The 2012 Reformation. *57-70*

v. Fellows
vi. Auxiliary Memberships
vii. Preferred Author Guidelines
viii. Index

Volume 23 Issue 10
Originally issued as G2

Global Journal of human-social science: G
Linguistics & Education
Volume 23 Issue 2 Version 1.0 Year 2023
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-460X & Print ISSN: 0975-587X

The Implementation of Genre-Based Teaching Method in Aerospace English Academic Writing Class

By Siming Huang
Northwestern Polytechnical University

Abstract- Notwithstanding the voluminous literature devoted to academic writing, especially using genre analysis, more investigation needs to be done on academic writing pedagogy focusing on discipline-specific. However, English for Academic Purpose (EAP) has long been focusing on what students learn instead of how they learn. In this regard, this study provides an integrated genre-based academic writing teaching model by classroom observation and interview, combining Rothery's (1994) genre-based teaching/ learning cycle, Hommand (1994)'s circular writing model with Swales (1990)' move analysis to shed some light on aerospace English academic writing classroom setting. This study also designs interviews to investigate the views of students toward genre-based teaching model and academic English writing. Hopefully, this integrated genre-based teaching model can develop students writing ability while improving their academic literacy.

Keywords: *genre-based teaching method, genre, academic writing, aerospace.*

GJHSS-G Classification: *DDC Code: 425 LCC Code: PE1075*



Strictly as per the compliance and regulations of:

© 2023. Siming Huang. This research/review article is distributed under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0). You must give appropriate credit to authors and reference this article if parts of the article are reproduced in any manner. Applicable licensing terms are at https://creativecommons.org/licenses/by-nc-nd/4.0/.

The Implementation of Genre-Based Teaching Method in Aerospace English Academic Writing Class

Siming Huang

Abstract- **Notwithstanding the voluminous literature devoted to academic writing, especially using genre analysis, more investigation needs to be done on academic writing pedagogy focusing on discipline-specific. However, English for Academic Purpose (EAP) has long been focusing on what students learn instead of how they learn. In this regard, this study provides an integrated genre-based academic writing teaching model by classroom observation and interview, combining Rothery's (1994) genre-based teaching/ learning cycle, Hommand (1994)'s circular writing model with Swales (1990)' move analysis to shed some light on aerospace English academic writing classroom setting. This study also designs interviews to investigate the views of students toward genre-based teaching model and academic English writing. Hopefully, this integrated genre-based teaching model can develop students writing ability while improving their academic literacy.**

Keywords: genre-based teaching method, genre, academic writing, aerospace.

I. Introduction

In the white paper "China's space program: A 2021 perspective", president Xi Jinping stated that "to explore the vast cosmos, develop the space industry and build China into a space power country is our eternal dream". Since 2016, China's space industry develops by leaps and bounds. In the 20th report of the national congress of CPC, Xi also emphasized that "we will move faster to boost China's strength in aerospace development". Young aerospace talents are the backbone of aerospace development in the future, besides, in order to meet the demand of the exploration of the aviation industry for the English proficiency of aerospace researchers, their academic literacy needs to be improved.

An academic article is one of the effective ways to spread aerospace research achievements, share academic insights and gain the international reputation of a country. Moreover, English for Academic Purposes (EAP), as a branch of English language education, has been a hot topic of research in applied linguistics since the mid to late 1960s (Feng J & Hyland, 2020). EAP is often favored by researchers interested in the genre as a tool for teaching discipline-specific writing to L2 learners in professional or academic settings (Cheng, 2018). In order to better spread national aerospace research achievements through academic articles, academic writing and instruction become crucial for both students and educators.

Snow & Uccelli (2009) suggest that academic English language proficiency consists of four points: linguistic competence, genre capability, critical thinking skills, and professional knowledge. Academic writing is an important parameter in students' academic literacy (Yang Y, 2016), which is meanwhile a daunting task for students to write because they must master both content and academic competence, especially for English as a Foreign Language (EFL) learners and novice writers to successfully master academic writing skills, because it requires a strong knowledge background in the organization of written texts, appropriate language, and vocabulary use (Tangpermpoon, 2008). L2 learners also face additional challenges in developing genre competence (Hyland, 2007). Besides, Swales (2004) also mentioned that Chinese research strength has not yet been fully manifested in various research indices and databases. The same point is also mentioned in Chinese foreign language academia since the 1980s, they have been putting an increasing focus on academic English writing. In recent years, the objective of Chinese English writing research has shifted, laying more stress on the subject instead of the object in class teaching (Yang Y, 2016). Also, theorists and practitioners from genre approaches reflect that writing instruction should be located in the disciplines (Wingate U, 2012).

The above problems show that academic literacy in China remains remedial, the same things happen in other countries, like UK and Australia. Research has suggested that students might not be as ready as expected to explicate and criticize their work with regard to disciplinary writing conventions (Wingate U, 2012). Rather, only when the students develop an understanding of their own disciplinary conventions can the writing practices be challenged and the writer finds his/her own voice and identity (Lo H Y et al, 2014). In view of this, a teaching method focusing on a specific discipline and supported by genre theory is essential.

Wingate U (2012) started an initiative at King's College London, called "writing journey", she used the metaphor by considering writing as a "journey", the destination of the "journey" is to develop the academic literacy of students, while the routes to arrive the destination are different. Here "route" means different instruction methods and materials. Regarding the above obstacles, paying attention to the "route" is

Author: Master Degree in the School of Foreign Studies, Northwestern Polytechnical University. Her research Interests include English for Academic Purposes, Academic English Writing, Discourse Analysis, Aerospace Academic Discourse. e-mail: 1298647107@qq.com

© 2023 Global Journals

necessary for both educators and students. As the genre has become a key concept in EAP (Hyland, 2016) and genre-based pedagogy is a mainstay of EAP instruction, researchers and practitioners should take notice of the benefit of genre-based teaching methods. Therefore, the genre- based approach is an effective "route" by using text analysis to enable students to understand and control the conventions and discourses of their discipline while producing text (Wingate U, 2012), which has become one of the most important and influential concepts in language education (Hyland, 2004).

Notably, previous research on aerospace English mainly focuses on the establishment of aerospace English corpus, discourse analysis, syllabus design, etc. But most existing syllabus does not tallier a specific course that combines both disciplinary contents with genre-based writing instruction. Besides, it is hard to operationalize in the actual classroom. Existing literature made few references to how learners actually analyzed target genres before engaging in their writing task (Cheng 2008). Under such circumstances, a genre-based academic English writing course featured by explicit and systematic instruction related to students' disciplines may be highly beneficial.

Yang & Allison (2003) once said that a focus on text organization remains very useful pedagogically. This study focuses on generic pedagogy to sketch some ways from the perspective of how students incorporate genre knowledge into their academic writing and their attitude toward the genre-based teaching model.

II. Literature Review

a) *Genre Analysis as a Supportive Tool in Academic Writing*

The word "genre" is derived from the Greek word "category" or "classification" (Hyon, 1996), which was originally applied to literary critics in the 18th century. Traditionally, it was conceived as a collection of fixed conventions. In the 20th century, modern critics have reconceptualized genre as "a dynamic set of conventions", which are associated with changing social purpose (Swales, 1990). Since the 1970s, the concept of genre has gradually penetrated into the field of linguistics (Yumei J, 2004).

John Swales(1990), as one of the representatives of genre analysis, defined genre as "an identifiable communicative event characterized by a set of communicative purposes that occur frequently in a particular professional or academic community and that are accepted and understood by members of the community". Swales believes that genres with relatively consistent purposes should have relatively similar structures. Therefore, professionals and scholars in a particular field should try to maintain this structural form to improve the quality and efficiency of communication (Swales, 1990). The most influential genre analysis framework established by Swales is initially characterized by the analysis of "move" (Swales, 2000).

"Move" refers to a section of a text that performs a specific communicative function (Kanoksilapatham, 2007). Swales (1990) explains that moves often contain multiple elements or steps and the function of these steps is to achieve the purpose of the move to which they belong. Some of the moves in a genre are obligatory, in that they are necessary to achieve the communicative purpose of the genre, whereas others are optional, those which speakers or writers may choose to employ if they decide those moves add to the effectiveness of the communication but do not alter the purpose of the text (Hasan, 1989). Based on Swales' genre theory, move analysis is an effective way of discourse analysis in investigating the underlying rhetoric structure of research articles (RAs) in terms of moves and steps for some pedagogical purposes (Moreno & Swales, 2018). An explicit understanding of text structures, linguistic choices, and the purpose of genres is crucial because one of the difficulties faced by EFL students when asked to produce an academic text is that they often have an inadequate understanding of how texts can be organized to convey their purposes (Hyland, 1990).

Regarding this, the aim of genre-based pedagogy that this study adopts is to identify how these moves are organized in a given genre to raise learners' awareness of both rhetorical organization and the linguistic features closely associated with their discipline. By employing Swales' move analysis, researchers analyze numerous texts of a specific genre to identify rhetorical sequences, or moves, in different parts of the writing. Students then learn about these moves to meet their disciplinary writing conventions and criteria (Lo H Y et al, 2014).

Based on the specific role that each part of the academic article plays in achieving the communicative purpose, Swales (1990) first identifies the larger structural parts of a research article, including the introduction, methods, result, discussion, and conclusion section, these individual sections of research article all have certain moves and steps. In terms of abstract, Hyland (2000)'s linear order of five move model was widely used. "Create a Research Space", also known as the "CARS" model was put forward by Swales in 1981 and showed a sequence of three moves that frequently occur in the introduction section of a research article. What's more, through a corpus-based study, Lim (2006) summarized the move structure of the methodology section, which follows three moves. Also, there have been several studies in the result section, including Brett (1994), Nwogu (1997), Yang & Allison (2003), etc. Yang & Allison (2003) also put forward seven moves in the discussion section.

© 2023 Global Journals

The above models have motivated many attempts of investigations in various fields, the importance of genre knowledge not only lies in helping language learners to understand and master academic, professional, or educational discourse but also in facilitating learners to follow some conventions of their discipline (Swales, 1990). What's more, the results of move analysis have been successfully used for developing teaching and learning materials (Stoller & Robinson, 2013).

b) Hammond's Circular Writing Model

Hammond et al. (1992) proposed a model including two cycles and four stages (see figure 1), this study tries to incorporate this model into aerospace academic English instruction.

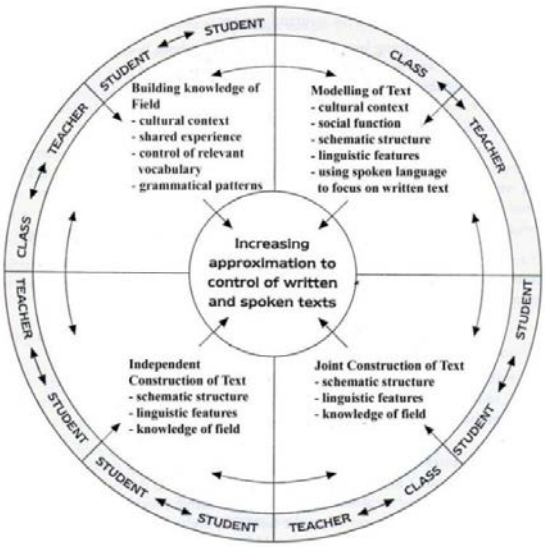


Fig. 1: An English writing textbook and syllabus organization model built on genre-based pedagogy

The above schema consists of two circles and four stages aiming to develop the different abilities of learners. The first circle focuses on developing listening and speaking skills, while during the second circle of learning, students' writing abilities can be improved.

In the first cycle, starting from the first stage called Building Knowledge of the Field (BKOF) where teachers and students build cultural context, share experiences, and discuss vocabulary and grammatical patterns, laying a solid foundation for the next stage. Then comes the Modeling of Text (MOT) where students read or listen to various texts that are geared around a certain communicative purpose, get to know its social and linguistic features and social functions, understand its schematic structure, and receive teachers' feedback. After listening and reading the material that shares the same communicative purposes, students enter the third stage called Joint Construction of Text (JCT). At this stage, learners try to produce spoken or written texts with their peers, and with bits of help from the teachers, students are free to share their academic knowledge and discuss things from different angles and write together. After completing the previous process, students consolidate their understanding of the text's schematic structure, field knowledge, and language patterns through interaction with teachers and their peers. They enter the final stage of the first cycle called Independent Construction of Text (ICT), here, students are expected to write a text on their own (Yang Y, 2016).

The second cycle is aimed at developing the ability in controlling written and spoken texts. Students gain some writing ability from the first cycle and write the text independently in the second cycle. After going through two circles by student-student and class-teacher interaction, students will master some genre knowledge in their discipline.

c) Genre-based Teaching/Learning cycle

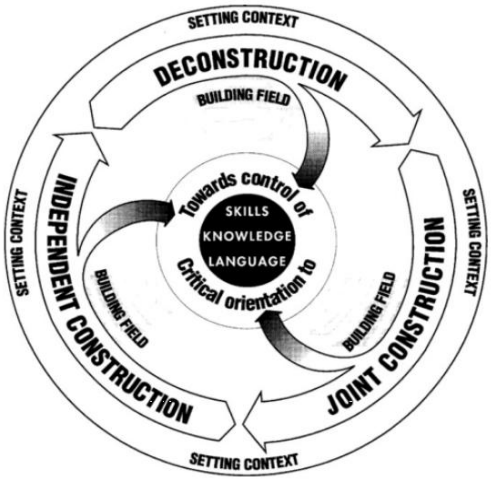


Fig. 2: The genre teaching and learning cycle by Rothery (1994)

The Australian systemic functional linguistics view of genre has promoted several instructional frameworks for implementing genre-based pedagogy (Halliday & Hasan, 1989). The most representative is Rothery (1994), who designed an effective writing cycle (see Figure 2), which can be divided into inner and outer cycles. The outer model includes three modules beginning with deconstruction, in this process, teachers play the primary role in guiding students to identify text organization and key language features. Through explicit instruction, language patterns in deconstruction are easy for students to learn and use, and these patterns can again be applied in independent writing modules (Martin, 1999). Deconstruction is followed by joint construction, teachers-students interaction helps them jointly construct a new text of the same genre, following the general patterns of the models. After this stage, students are dominant and can produce text on their own. As the inner circle suggests, the goal of the pedagogy is both control of the genre and critical

© 2023 Global Journals

orientation towards texts. This teaching and learning cycle in the Australian context are to help students become more successful readers and writers of academic and workplace texts (Hyon, 1996).

The combination of the two cycles can both be the instructional guide of English academic writing classes with a specific discipline. Because the two cycles have the same logic but have a different emphasis, the first cycle proposed by Hammond focuses on genre, while the second cycles emphasize writing instruction. Both cycles are designed to narrow the gap between students by guiding the whole class to deconstruct and jointly construct the expected genre before they attempt independent writing tasks (Rose D, 2015). Regarding this, the two cycles jointly promote students' genre awareness and help them to develop specific knowledge fields and ultimately build distinctive language patterns in a certain genre (Martin, 1999).

d) Application of Genre-based Teaching in Discipline-specific Academic Writing

Genre-based teaching includes both theory and practice, but more attention needs to be paid to empirical and experimental studies related to a different discipline, besides, few studies focus on the aerospace English classroom setting. In order to meet the urgent demand of the aviation industry for the English proficiency of aerospace major students, there is a compelling need for teachers of writing courses in English for academic purposes (EAP) to have a better understanding of how instruction can assist students to achieve their academic goals.

There are some typical latest studies related to specific disciplines supported by genre-based teaching approaches. For instance, Ellis (1998) conducts a contrastive experimental study on how effective a genre-based approach was in teaching the writing of short tourist information texts in an EAP context, and how this method improves learners' ability to produce effective tokens of the genre. The statistic in his study shows that the genre group improved significantly whereas the non-genre group did not.

Jihua Dong and Xiao fei Liu (2020) explored the potential of integrating corpus-based and genre-based approaches to teaching rhetorical structures in engineering academic writing courses at a university in China. The effectiveness of this pedagogical approach was evaluated across pre- and post-instruction questionnaires, interviews, students' reflective journals, and students' writing samples. Their study can be conceived as an attempt at a new integrated method in academic writing instruction.

In order to implement the genre-based teaching approach to aerospace English classes and meet the need of the new situation, Chinese researchers Liu Quan and A Rong's study published in China ESP Research in 2021, proposes a "theory + practice" model of basic English for aviation based on the genre teaching method. Their study proposed that the existing curriculum in vocational colleges is no longer adequate to meet the needs of both teaching and learning. It is important to develop a curriculum based on the needs of students and to clarify the positioning of general English and Aviation English (Liu Quan, A Rong, 2021). This claim reflects the disconnection between general English teaching and students' need. This paper is a good attempt to implement a genre-based teaching method in real aviation English class, and the students' feedback is a positive trend.

All the above cases highlight the potential power of genre as an explicit, supportive tool for building academic literacy (Cheng 2008). Genre-based teaching approach focusing on rhetorical organization can be successful in an EAP or ESP teaching situation, therefore, Students of different majors need to have some linguistic knowledge, especially genre, in this way, they can both achieve their communicative goals and produce well-organized writing (Ellis, 1998).

III. Methodology

a) Research Design

English for Specific Purpose has long been noted as paying ''scant attention to how people learn, focusing instead on the question of what people learn'' (Hutchinson & Waters, 1987). In order to solve the problem, this study aims to investigate teachers' practices and students' attitudes through classroom observation and post-class interviews. (The author has observed 40 doctoral students' genre-based academic writing classes with mixed majors with more than 20 class hours at Northwestern Polytechnical University, China). The purpose of observation is to explore how students notice and analyze generic features of academic texts and incorporate generic knowledge into their academic writing. However, the students in the observed class have different majors, including Biomedical Sciences, Engineering, Mathematics, Aeronautics, Architectural and Civil Engineering, etc. So, this study attempts to put forward a new integrated teaching method specifically for aerospace students.

b) Data Collection

The primary data of this study comes from three types, class observation notes, post-class interviews, and instruction materials of class. Class observation lasts for consecutive 10 classes. During the observation, the author took down some notes about students learning behavior, response, attitude, and teacher's comment during the class. In order to investigate the attitude of students toward the new teaching model, a post-class interview was designed to explore students' attitudes about the current situation in their English class and the genre-based teaching model. The interview lasts for 30 minutes, and there are a total of 10

© 2023 Global Journals

interviewees majoring in aerospace from the observed classroom, the interviews were semi-structured. The interviews were audio recorded and transcribed in full by Xunfei technology. Instruction materials used in class were used to evaluate the difficulty of the learning material and how these materials facilitate learners' writing.

c) *Data Analysis*

Data analysis proceeded inductively through repeated examination of class observation notes, teacher's comments, and relevant interview statements.

d) *Research Question*

1. How does genre knowledge facilitate students' English academic writing?
2. What are the students' views toward the new integrated teaching syllabus for aerospace students?

e) *Instructional Design*

Since the students in the observed class were all Ph.D. students and they were all expected to write up and publish their research after the class. Besides, the goal of this academic English writing course is to improve students' academic English proficiency and to be able to write professional academic texts in this field. Focusing on these goals, the implementation of genre-based integrated teaching methods in aerospace English academic writing classes consists of four interrelated stages with the guidance of the two cycles and Swales' move analysis as the theoretical basis. The following is the procedure of class design:

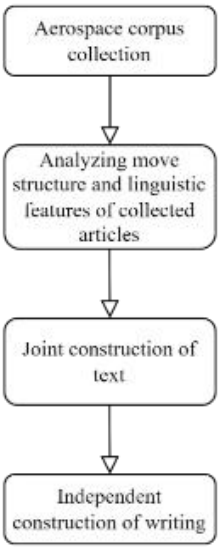


Fig. 3: The procedure of class design of this study

The first stage aims to build knowledge of aerospace, in this regard, students are supposed to collect at least ten academic articles published in high-impact factor journals to establish a mini corpus. All the articles are geared around aerospace academic texts and topics that they are going to deal with in the second stage.

The second stage is the most crucial part in this writing "journey". Students start to delineate the macro rhetoric organization of genres and the micro linguistic features of the articles they collected. During this process, genre analysis plays as a kind of critical engagement of text, students are engaged in "deep thinking", they think from the perspective of the writer to see how rhetorical choices are made and talk with the author (Yang Y, 2016). Move analysis helps students figure out the rhetorical structure and communicative purpose of the collected texts. With the help of teachers, students are supposed to first decipher the move structure of articles and figure out the lexico-grammatical features that characterize a move. Then, they need to distinguish the obligatory and optional moves and the communicative purposes of these moves. Teachers can lead students to deep thinking by posting some questions, like "how many moves are in this part of the article?", and "what are the writers' purposes for using these words and expressions?". Teachers are supposed to follow the structure of articles to proceed their instruction. According to Sun Yu (2021)'s study, academic English writing courses should be taught with an understanding of subject-specific content and discourse to help students establish their discipline- specific writing model. Besides, writing in the disciplines requires the subject expert to teach writing as part of the regular subject teaching (Wingate U, 2012). If necessary, this study suggests that two teachers are supposed to jointly conduct the course, one has linguistic knowledge, especially about the genre, and the other should be an aerospace professional or specialist involved in the teaching and evaluation or preparation process for the class. In this way, the whole teaching process will be more effective and professional. After class, the out-of- class assignment on annotating the move structure should be assigned to students.

The third stage is the joint construction of the texts. Students try to write the different parts of articles by imitating these collected articles. Then, it is necessary to have a peer review and group discussion after finishing their writing. At the final stage, they come into the independent construction stage, after finishing their own work, teachers' evaluation will do a lot of help.

After going through the above genre-based teaching procedures, students are supposed to become more observant readers of the discoursal conventions of their fields and thereby deepen their rhetorical perspectives on their disciplines (Swales & Lindemann 2002).

IV. Results and Discussion

The post-class interview interviewed 10 students whose major is aerospace at Northwestern

© 2023 Global Journals

Polytechnical University, China. According to the time period in which students were exposed to genre knowledge, the questions of the interview were divided into three main sections, before-class, during-class, and post-class questions, corresponding roughly to the concerns of the two research questions. During the process of the interview, the interviewer explains the new teaching method to the interviewees to see their attitude towards this integrated teaching method. The interview questions and students' responses are as follows:

Question 1: Do you have academic English writing classes related to your major before?

7 students mentioned that they have classes on academic writing like the observed class, in which the students have different majors and attend the class together, but no tailored instructions focus on their major, and three students didn't have such a class before. Besides, in traditional academic writing classes, teachers will lecture them on some general rules that fix most of the disciplines. Students think this way of teaching is ineffective.

Question 2: How did you learn to write and publish your academic article before?

In this question, most of the students say that they learn it by themselves by reading a lot of articles related to their research, finding the rules from these articles, and imitating the structure, but this is quite time-consuming. Other students say that academic writing always makes them headache, because they haven't learned how to write academic articles systematically before, so they don't know where to start.

Question 3: What are the difficulties in your genre-based writing class, and why?

Most of the students pointed out that analyzing the move structure and identifying the communicative purpose of each move is the most difficult because some of the moves and their communicative purpose are not always clear.

Question 4: What are the most important points in your genre-based writing class, and why?

Students pointed out that their focus on academic writing has shifted from the sentence level to a deeper level, they concern more about how they convey information instead of the information itself, and how to accurately express their views is crucial. They start to enjoy reading different samples so they can see how these articles are organized and catch the authors' points. The genre-based method can make them become more confident and interested in writing academic articles than before.

Question 5: After hearing about the new integrated teaching model, what's your view of it?

Students generally hold a positive position towards this new teaching model, they say that the new teaching method is different from the traditional one, it has specific instructions related to their major and a detailed analysis of the structure of the articles. Especially the two teachers jointly conducting the writing class are innovative and may do a lot of help. Hopefully, this method will become common in universities to meet their needs instead of going astray.

The above interviews reveal the attitude of students toward the new teaching model, which mainly comes from three perspectives:

Before taking the genre-based academic writing class, this interview reveals the problem that the traditional general English classes cannot meet students' academic writing needs, the general English class most students have taken is quite superficial and fundamental, which only presents students with simple vocabulary, sentence, and grammar teaching and exercise. This kind of class cannot contribute to academic literacy improvement but may help in their fundamental English abilities. So, there is a disconnection between the current university English curriculum and the needs of students' desire of improving their academic ability. During the class, students seem to be more confident and feel motivated after the instruction because they seem to have some clues on academic writing. After hearing the new teaching model put forward by this study, most of the students give high comments on this syllabus design, because they think the class provides the theoretical basis for academic writing. This kind of genre-based teaching makes students' writing output more operable.

The Genre-based teaching method offers students an explicit understanding of how target texts are structured and why they are written in the way they are (Hyland, 2007.) This integrated method not only can be applied in aerospace English academic writing classes but also in other disciplines.

V. Conclusion

Hyland (2003) in his work gives us a strong and powerful explanation of the function of the genre-based teaching method, he said that by making the genres of power visible and attainable through explicit instruction, genre pedagogic seek to demystify the kinds of writing that will enhance learners' career opportunities and provide access to a greater range of life choices. The genre-based pedagogy has opened new horizons in front of course designers, materials developers, language educators, and second language learners.

Previous teaching practice, classroom observation, and students interview show that the new integrated genre-based teaching approach enhances the students' genre knowledge, stimulates students' interest and motivation in writing, and promotes collaborative learning in the process of writing, proving that the genre-based approach is an effective method of teaching academic writing at university, which is worth promoting.

© 2023 Global Journals

As a different discipline has a different rhetoric paradigm, this study aims to inspire students to be more flexible and break out of their mindset in their discipline, instead of conforming to the prototypical structure of the texts or applying a "one size fits all solution" in academic writing. However, as this study only shows a model of teaching in aerospace English academic writing class, further researches are necessary to implement and promote this method in real aerospace English class. Future research also can specify the design and improvement of genre-based course aims, content, and structure, more importantly, teachers' training and support are also needed.

References Références Referencias

1. Brett P. (1994). A genre analysis of the results section of sociology articles [J]. English for specific purposes, 13(1): 47-59.
2. Cheng A. (2018). Genre and graduate-level research writing [M]. University of Michigan Press.
3. Cheng A. (2008). Analyzing genre exemplars in preparation for writing: The case of an L2 graduate student in the ESP genre-based instructional framework of academic literacy [J]. Applied linguistics, 29(1): 50-71.
4. Dong J, Lu X. (2020). Promoting discipline-specific genre competence with corpus-based genre analysis activities [J]. English for Specific Purposes, 58: 138-154.
5. Ellis R, et al. (1998). An evaluation of a genre-based approach to the teaching of EAP/ESP writing [J]. TESOL quarterly, 32(1): 147-156.
6. Feng J, Hyland K, (2020). Interactive Meta-discourse: Argumentation and Rhetoric in a Changing Academic Context [J]. Foreign Language Education, 41(02): 23-28.
7. Hyland K. (2007). Genre pedagogy: Language, literacy and L2 writing instruction [J]. Journal of second language writing, 16(3): 148-164.
8. Hyland K. (2016). Methods and methodologies in second language writing research [J]. System, 59: 116-125.
9. Hyland K. (2004). Genre and second language writing [M]. University of Michigan Press.
10. Hyon S. (1996). Genre in three traditions: Implications for ESL [J]. TESOL quarterly, 30(4): 693- 722.
11. Hasan, R. (1989). The structure of text. In M. Halliday & R. Hasan, Language, context, and text: Aspects of language in a social-semiotic perspective. Oxford: Oxford University Press, 52–69.
12. Hyland K. (1990). A genre description of the argumentative essay [J]. RELC journal, 21(1): 66-78.
13. Hyland, K. (2000). Disciplinary discourses: Social interactions in academic writing.
14. Hammond J, Burns A, Joyce A, Brosnan D, Gerot L. (1992). English for social purposes: A handbook for teachers of adult literacy [M]. Sydney: National Centre for English Language Teaching and Research, Macquarie University.
15. Halliday M A K, Hasan R. (1989). Language, context, and text: Aspects of language in a social-semiotic perspective [J].
16. Hyland K. (2003). Genre-based pedagogies: A social response to process [J]. Journal of second language writing, 12(1): 17-29.
17. Hutchinson T, Waters A. (1987). English for specific purposes [M]. Cambridge university press.
18. Kanoksilapatham B. (2007). Rhetorical moves in biochemistry research articles [J]. Discourse on the move: Using corpus analysis to describe discourse structure, 73-119.
19. Quan L, Rong A. (2021). The Implementation of "Theory + Practice" Course for Essential English of Aviation Based on Genre-based Approach: A Case Study in ABC College [J]. China ESP Research, (03): 95-105.
20. Lo H Y, Liu G Z, Wang T I. (2014). Learning how to write effectively for academic journals: A case study investigating the design and development of a genre-based writing tutorial system [J]. Computers & Education, 78: 250-267.
21. Lim, J. M. H. (2006). Method sections of management research articles: A pedagogically motivated qualitative study. English for Specific Purposes, 25(3), 282-309.
22. Moreno, A. I., & Swales, J. M. (2018). Strengthening move analysis methodology towards bridging the function-form gap. English for Specific Purposes, 50, 40-63. London, UK: Longman.
23. Martin, J. R. (1999). Mentoring semogenesis: 'genre-based' literacy pedagogy. In F. Christie (Ed.), Pedagogy and the shaping of consciousness: Linguistic and social processes, London: Continuum, 123-155.
24. Nwogu K N. (1997). The medical research paper: Structure and functions [J]. English for specific purposes, 16(2): 119-138.
25. Ruiying, Y., & Allison, D. (2003). Research articles in applied linguistics: Moving from results to conclusions. English for specific purposes, 22(4), 365-385.
26. Rothery, J. (1994). Exploring literacy in school English (Write it right resources for literacy and learning) Metropolitan East Disadvantaged Schools Program. Sydney.
27. Rose, D. (2015). New developments in genre-based literacy pedagogy. Handbook of writing research, 2, 227-242.
28. Snow, C. & P. Uccelli. (2009). The challenge of academic writing [C] The Cambridge Handbook of

© 2023 Global Journals

Literacy. New York: Cambridge University Press, 112—133.
29. Swales, J. M. (2004). Research genres: Explorations and applications. Cambridge: Cambridge University Press.
30. Swales J. (1990). Genre Analysis: English in Academic and research Setting Cambridge: Cambridge University Press.
31. Swales J M. (2000). English in today's research world: A writing guide [M]. University of Michigan, Ann Arbor, MI (EUA).
32. Swales, J. M. (1981). Aspects of article Introductions. Aston ESP Research Reports No 1. Birmingham, UK: Language Studies Unit, The University of Aston. Republished University of Michigan Press.
33. Stoller, F. L., Robinson, M. S. (2013). Chemistry journal articles: An interdisciplinary approach to move analysis with pedagogical aims. English for Specific Purposes, 32(1), 45-57.
34. Swales, J. M. & Lindemann, S. (2002). Teaching the literature review to international graduate students. In A. M.
35. Yu S. (2021). An Analysis of Academic English Writing of Chinese Doctoral Students. Journal of Yangzhou University (Higher Education Study Edition), 25(03): 76-82.
36. Tangpermpoon T. (2008). Integrated approaches to improve students writing skills for English major students [J]. ABAC journal, 28(2).
37. Wingate, U. (2012). Using Academic Literacies and genre-based models for academic writing instruction: A 'literacy' journey. Journal of English for academic purposes, 11(1), 26-37.
38. Yu Mei. J, (2004). Genre Analysis and Chinese English Academic Paper Abstracts. Foreign Language Education, 32-36.
39. Yang, Y. (2016). Teaching Chinese College ESL Writing: A Genre-Based Approach. English language teaching, 9(9), 36-44.
40. Twentieth National Congress of the Communist Party of China. (www.gov.cn)
41. China's Space Program: A 2021 Perspective. (www.gov.cn)

© 2023 Global Journals

Global Journal of human-social science: G
Linguistics & Education
Volume 23 Issue 2 Version 1.0 Year 2023
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-460X & Print ISSN: 0975-587X

3D Resources for Visually Impaired Students

By Miguel Ángel Aires Borrás, Cleyton Fernandes Ferrarini, Plínio Cesar Marins, Andrea Regina Martins Fontes, Patrícia Saltorato, Camila Barros de Miranda Moram & Thaís Andressa de Souza

Federal University of São Carlos

Summery- This paper analyzes the process of development of three-dimensional didactic resources created and tested with visually impaired students from Brazilian public schools which involved designers, teachers, and students collaboratively. The importance of interaction among the areas of Engineering, Design, and Education was also analyzed. The central results were the creation or adaptation of effective didactic resources as intermediary objects to help teachers, and visually impaired students in the teaching-learning process within the areas of Arts, Nature Sciences, and Mathematics. This paper points out the importance of collaborative activities involving users and designers along the process of assistive products development, measured with Rasch Analysis and through verbalizations of students, teachers, and designers.

Keywords: visual impairment; universal design; teaching and learning; assistive technology; 3d printing; tactile material.

GJHSS-G Classification: DDC Code: 425.62 LCC Code: PE1301



Strictly as per the compliance and regulations of:

© 2023. Miguel Ángel Aires Borrás, Cleyton Fernandes Ferrarini, Plínio Cesar Marins, Andrea Regina Martins Fontes, Patrícia Saltorato, Camila Barros de Miranda Moram & Thaís Andressa de Souza. This research/review article is distributed under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0). You must give appropriate credit to authors and reference this article if parts of the article are reproduced in any manner. Applicable licensing terms are at https://creativecommons.org/licenses/by-nc-nd/4.0/.

3D Resources for Visually Impaired Students

Miguel Ángel Aires Borrás [α], Cleyton Fernandes Ferrarini [σ], Plínio Cesar Marins [ρ], Andrea Regina Martins Fontes [ω], Patrícia Saltorato [¥], Camila Barros de Miranda Moram [§] & Thaís Andressa de Souza [χ]

Summary- This paper analyzes the process of development of three-dimensional didactic resources created and tested with visually impaired students from Brazilian public schools which involved designers, teachers, and students collaboratively. The importance of interaction among the areas of Engineering, Design, and Education was also analyzed. The central results were the creation or adaptation of effective didactic resources as intermediary objects to help teachers, and visually impaired students in the teaching-learning process within the areas of Arts, Nature Sciences, and Mathematics. This paper points out the importance of collaborative activities involving users and designers along the process of assistive products development, measured with Rasch Analysis and through verbalizations of students, teachers, and designers.

Keywords: visual impairment; universal design; teaching and learning; assistive technology; 3d printing; tactile material.

I. Introduction

Despite the efforts to universalize education, the perspective of inclusive education is still a significant challenge. Special Education needs special pedagogical resources for the effectiveness of the teaching and learning process, offering the necessary support to students to reach the ordinary school curriculum, and to develop their cognitive capacities (DA SILVA FILHO; BARBOSA, 2015).

In this context, Assistive Technology (AT), which concerns research, manufacturing, use of equipment, resources, or the strategies used to enhance the functional abilities of people with disabilities, can facilitate daily activities enhancing their functional capabilities, thus giving them autonomy, independence, and equality in carrying out activities and handling equipment (AGNOL et al., 2015).

In Brazil, Assistive Technology (AT) is defined as being an area of knowledge, of interdisciplinary characteristics, which includes products, resources, methodologies, strategies, practices, and services that aim to promote the functionality, related to activity and participation, of people with disabilities, impairments, or reduced mobility, aiming at their autonomy, independence, quality of life and social inclusion (BRASIL, 2009).

Author α σ ρ ω ¥ § χ: Department of Production Engineering, Federal University of São Carlos, Sorocaba, SP, Brazil.
e-mails: maborras@ufscar.br, cleyton@ufscar.br, plinio@ufscar.br, afontes@ufscar.br, saltorato@ufscar.br, camilamoram@ufscar.br, thaisvigari@hotmail.com

Considering the difficulties of access to learning for students with disabilities, Santos (2007) states that in the case of blindness, for example, there is a significant limitation to the teaching process, requiring that educational practices, with people with visual impairments, be designed to contemplate its peculiarities.

According to data from the Brazilian Institute of Geography and Statistics (IBGE, 2012), there are in Brazil 45.6 million people with some kind of disability, and severe visual impairment affects 3.5% of the population.

The 2016 School Census (INEP, 2017) showed that there were 60,000 people with disabilities enrolled in Early Childhood Education in Brazil, and of these, 82.0% were included in regular classes. Furthermore, the data showed that there was a leap in Elementary Education, in which the number of people with disabilities enrolled in Brazil rose by around 600 thousand of this amount, 57.8% are in regular classes (INEP, 2017). However, in high school, this number dropped to just over 70,000 enrollments, with practically 100% of the students enrolled in regular classes (INEP, 2017). The decline in enrollments of people with disabilities from Elementary to High School (a decrease of around 88.4%) indicates a possible difficulty in apprehending knowledge. That could indicate insufficient knowledge to allow them to progress through school levels, and on other hand, may suggest the inadequacy of didactic resources and infrastructure discouraging students from continuing their studies.

Analyzing data from the 2015 Higher Education Census (INEP, 2016), it can be seen that, due to a set of factors, such as the creation of new institutions and courses, as well as the encouragement of access through initiatives such as the University for All Program (ProUni), the National High School Exam (ENEM), and the Student Financing Program (FIES), the number of people enrolled in higher education has increased significantly. The number of people with disabilities entering these institutions has also grown. INEP (2016) points out that in 2015, 8,027,297 students enrolled in higher education courses in the country, which represented a growth of 90.06% compared to 2004. Regarding students with special educational needs, the increase was much higher in the same comparison (703.00%), reaching 37,927 enrollments.

© 2023 Global Journals

Despite the entry of people with disabilities having increased three and a half times concerning the total number of enrollments in higher education in the country in 2015, the percentage came to represent only 0.47%. Of these enrollments, 1,922 were people with blindness, and 9,224 were people with low vision (INEP, 2016). In the state of São Paulo, according to INEP data (2016), 407 blind people (3 in federal institutions) and 1,557 low-vision people (52 in federal institutions) enrolled in higher education.

Inserted in this context are people with visual impairment (PVI) who, despite the significant number of students with visual impairment glimpse the need for a pedagogical service that breaks the barriers imposed by society, researchers from the Education area show that the lack of teacher training for the correct use of technological/pedagogical resources as being one of the main obstacles which result in the exclusion of blind and low-vision students in several activities which make up the school curriculum. We highlight those whose incidence of images, formulas, graphs, and figures prevail, or are equal to the descriptive contents, as in the case of Mathematics, Chemistry, Physics, Geography, Biology, and Music.

Cerqueira and Ferreira (2000) state that in no other form of education, didactic resources are necessary for the education of students with visual impairment, as these require tactile contact and interaction with differentiated materials to allow their participation in the activities culminating in their learning. Borges (2009) indicates three prerequisites for people with disabilities to have access to and incorporate the use of technologies: information about the existence of artifacts, availability of resources to get them, and access from the place where the person is or lives.

We identify an established set of support materials for people with visual impairment that can be found in the national market or distributed free of charge by support or government institutions.

This gap is a great barrier to students with visual impairment attendance and maintenance. The teachers are responsible for adopting strategies and didactic resources to meet the school curriculum.

Although the current educational policy seeks to stimulate the inclusion of children with disabilities in the regular school system, it is a notorious shortage of pedagogical alternatives that facilitate this integration. In the specific case of students with visual impairment, according to Paim (2002), when this group of students is inserted in the regular school, besides facing the challenge of overcoming biological limitations imposed by the absence of sight, they also face constraints imposed by the educational system such as lack of preparation of teachers, lack of printed material in Braille and didactic resources that favor their teaching and learning process.

According to the MEC (BRASIL, 2001), it is evident that teaching based solely on theoretical exposition, without significant concrete experience, in which the student's direct participation is lacking due to insufficient adequate didactic resources, will tend to develop in any student an attitude that is unfavorable to the assimilation and understanding of the content created.

Vision is a highly motivating function for development in all its aspects. The visual perception of objects, people, shapes, colors, and movement arouses curiosity and interest and prompts the child to approach and explore the outside world. Children with low vision or blindness may have this interest diminished by the lack of stimuli and may thus become apathetic and quiet. The environment must be organized to actively promote development through the sensory channels that the child has so that they can participate in daily activities and learn like any other child (LAPLANE; BATISTA, 2008).

Cerqueira and Ferreira (2000) state that didactic resources are so important in no other form of education. Students with visual impairment need tactile contact and interaction with differentiated materials that allow their participation in activities culminating in their learning.

For Toledo and Pereira (2007), the visually impaired child can obtain knowledge through tactile perception and hearing but, for them to get to know the world, it is necessary to let them get objects that they can touch and feel, as well as check the size, weight, and shape.

This paper analyzes the development process of three-dimensional didactic resources created and tested with visually impaired persons (PVI) which involved designers, teachers, and students in collaborative design.

II. Resources and Techniques

This research is Interdisciplinary, applied, objective, by sampling, based on direct observation and primary data, and experimental, as to the level of interpretation. By controlling the technical attributes and characteristics of the design and prototyping processes, an attempt will be made to deliver adequate didactic resources in the teaching-learning process for visually impaired students.

It is also possible to conclude when considering the characteristics of collaborative, interdisciplinary, and group design, applied, experimental, and direct observation, that this research is participatory and, while participatory, we can qualify it as research-action, because when seeking to achieve the proposed objectives, there will be consequent and effective practical action of the research team and sample group involved in the problem under observation (THIOLLENT,

© 2023 Global Journals

2011). This research was developed according to the following steps:

a) *Exploratory Phase:* approval by the Ethics Committee of Plataforma Brasil; leveling of the research team as to the basic concepts of the areas involved (Education, Engineering, and Design), the problem to be solved, objectives, actors, and expected results;

b) *Informational Design:* Documentary research and expert interviews were conducted to define the knowledge base to be shared among the research team members and between them and the participating actors, and vice-versa;

c) *Hypothesis Building and Review:* Construction of assumptions about possible solutions to the problem posed in the research (Stage 1) and review of the hypotheses already posed in the project and throughout the execution of the project. Project worked on: *Hypothesis* "*a*" Ha0: The use of three-dimensional didactic resources enhances the learning of visually impaired students. Ha1: The use of three-dimensional didactic resources does not enhance the knowledge of visually impaired students; *Hypothesis* "*b*" Hb0: If Hypothesis "a" is accepted, then three-dimensional didactic resources promote school inclusion of the visually impaired students. Hb1: If Hypothesis "a" is not accepted, then three-dimensional didactic resources do not promote school inclusion of the visually impaired students; *Hypothesis* "*c*" Hc0: If Hypothesis "a" is accepted, then three-dimensional didactic resources stimulate greater knowledge apprehension by visually impaired students. Hc1: If Hypothesis "a" is not accepted, then three-dimensional didactic resources do not promote the most significant apprehension of knowledge by the visually impaired students;

d) *Sampling:* the research team, together with the Board of Education of Sorocaba Region and the Municipal Secretariat of Education, determined the sample size and characteristics of the object of study. The team visited the schools where students with visual impairment attend classes. Actors collaborated with the study's development and validated and received the developed didactic resources. For presenting and testing the didactic resources specifically with students with visual impairment and their teachers, and considering that the population with these characteristics in public schools located in the city of Sorocaba is limited, we intend to work with a nonprobability sample by typicity, leaving it up to the researchers to find a representative sample, not by random choice process. The study sampled 12 participants whose ages ranged from 15 to 54 years. Participants consisted of 5 students (A – man, low vision, B – man, blind, C – woman, blind, D – man, blind, E – woman, blind); 4 teachers (A – woman, B – woman, C – man, D – woman) and, 3 designers (A, B, C). Participants or their legal guardians signed an informed consent form requested by the Research Ethics Committee of the Federal University of São Carlos;

e) *Selection of School Contents, Methods, and Techniques for developing didactic resources:* The knowledge and school contents in the areas of Art, Nature Sciences, and Mathematics that were contemplated with the construction of physical and digital didactic resources listed from the analysis of the National Curricular Parameters for High School, the textbooks (National Program of the Textbook), the Curricular Proposal of the State of São Paulo, the Common National Curricular Base (under discussion at the Ministry of Education), as well as from interviews with teachers and students, actors participating in the project. This stage was performed with the collection of data and information in documentary research and interviews with participating actors; holding seminars to discuss the data and information collected to carry out the selection of contents, methods, and techniques, the indication of need, the area of chemistry was added to the areas of knowledge initially covered by this project;

f) *Conceptual/Preliminary Design, or Formal Knowledge/Informal Knowledge:* consists of developing the first drawings and written explanations of the desired features and the use of resources for the activities planned in the previous step with the participation of students, teachers, and designers. At this stage, it is also intended to define the performance indicators for the didactic resources. It is known that the didactic resources for visually impaired, teachers and students, the following attributes are valued (CERQUEIRA; FERREIRA, 2000) – *Size:* The materials cannot be excessively large or small with the purpose of highlighting details of the material and enabling the proper apprehension of the totality of the didactic resource; *Tactile Significance:* The didactic resource must have a perceptible relief being constituted with, preferably, different textures each one highlighting a type of component of the material and highlighting contrasts of the kind smooth/rough, thin/thick; *Acceptability:* The material used cannot hurt or irritate physically or mentally the user with the intention of not provoking reactions of rejection; *Visual stimulation:* The resources should have strong and contrasting colors to stimulate the functional vision of the user; *Fidelity:* The resource and material used should be accurate and precise in relation to the original material as much as possible;

© 2023 Global Journals

Ease of Handling: The resources should be easy to handle for their practical and functional use by the student, avoiding possible rejection of use; *Resistance:* Didactic resources should be made of materials that do not deteriorate easily, considering the frequent handling by students; and *Safety:* materials and resources must not offer risk to the health and physical or mental integrity of teachers, students, assistants, and the like';

g) *Preparation of Material for Teacher Training:* Based on the survey of characteristics and requirements carried out with the teachers, manuals for using the didactic resources were prepared;

h) *Production of Didactic Resources:* The didactic resources were made in the Prototyping Laboratory of the UFSCar at Sorocaba (LADEP). Manuals were prepared for guidance on the assembly and use of resources;

i) *Validation of Didactic Resources:* In regular meetings between the design team and participants, all the proposed resources were evaluated over six months when information was collected, and performance indicators were measured through interviews with teachers and students of these resources as well as through observations during use. The intention was to identify the need for improvements and adjustments for the final composition of the didactic material. Rasch Analysis of the collected data was performed.

It is important to describe some aspects of Rasch Analysis. According to Georg Rasch, at least much of science needs objectivity in the practice of comparisons for analyzes and conclusions (RASCH, 1964a, 1964b). Rasch (1966a) indicates that "two features seem indispensable in scientific statements: they deal with comparisons, and the comparisons must be objective. To complete these requirements, I have to specify the kind of comparisons and the precise meaning of objectivity" (RASCH, 1966a, p. 3).

For Stamler and Naples (2021), three core features of Rasch Measurement make it distinctive: the construct under investigation is normally distributed, the proposition that derived measures should be “test-free” and “person-free” and the objective of Rasch measurement is to construct a unidimensional scale and then test how well the data fits that model. Some authors explain that the assumption of normality manifests when raw scores are transformed with a logit transformation.

In Rasch (1980), the author explains the equation quite pedagogically by describing the case of throwing an ashtray from different heights (H1, lowest to a higher H6) and watching them crash to the ground with events of breaking (- or 0) or not breaking (+ or 1) the ashtray, subsequently indicating that the low and high falling distances would not reveal any difference of material density between the ashtrays, while the middle distances would do it.

The Rasch model has been used to verify the evaluation process of assistive technologies (FISCHL; FISHER, 2007; CARONNI et al., 2023) and, subsequently, the ability to objectively evaluate the analyzed objects, seeking to isolate the influence of the individual's ability on the process of perceiving the success of the assistive technology for the user.

Rasch Analysis was performed using the jMetrik computer program, which generated not only difficulty calibrations and capability estimates, but also goodness-of-fit statistics and standard errors (SE). The original Rasch model analyzes data from the interaction of two facets: items and persons, and the application can be extended to a third facet (RASCH, 1964a, 1964b, 1966a, 1966b, 1980). For this study, a three-facet model was used: the users and designers of the developed didactic resources (assistive devices), the didactic resources and their rated product features (fidelity, resistance, safety, size, tactile significance, user acceptance, visual stimulation), and the designers.

It is worth stressing that the junction of users and designers in a single entity was possible because they developed the learning resources collaboratively, in a product development process where any change in design characteristics was discussed and approved by both actors involved in this process. It can be said that for the application here of the Rasch model, it was considered that "User + Designer = Person 's'". The items are the product features rated by person *s*. The main equation of the Rasch Model is the following (RASCH, 1964a, 1964b, 1966a, 1966b):

$$P(X_{is} = 0|\theta_s, b_i = \frac{e^{(\theta_s - b_i)}}{1 + e^{(\theta_s - b_i)}}$$

Where,

X_{is} = response of person s to item *i* (0/- or 1/+)

θ_s = ability level for person *s*

b_i = difficulty of item *i*

Students were asked to compare their learning of the content without the aid of the three-dimensional material to the possibility of recalling the knowledge built through the tactile resources available. The first step was to ask questions about the concepts covered in each area of expertise throughout elementary school. Students were encouraged to explore the material and tell us their impressions: what they were feeling if something in the material bothered them and if they understood the function of that material. It is important to point out that the students have different affinities with each area of knowledge. Each student had a unique experience, in different schools and with different teachers, in different concrete life situations. We do not

© 2023 Global Journals

try to compare one student to another but, to analyze the supposed impact of the absence of materials in their school experiences.

III. Results

Concerning the teaching and learning process, certain relevant aspects must be considered regarding the visual references adopted by the educator because there is a natural predominance of vision over the other senses, and this causes knowledge that is not accessible to the student with visual impairment to be used by the seeing person to talk to him. This student develops a language and knowledge driven by the visual, staying at the level of verbalism and mechanical learning.

According to Cerqueira and Ferreira (2000), this importance takes into account that one of the ordinary problems of the visually impaired, especially the blind, is the difficulty of contact with the physical environment, the lack of appropriate material, the child's insufficient contact with things in the world, there is often a lack of motivation of the student for learning, so parameters such as size, tactile significance, and acceptance must be taken into account for the preparation of adapted didactic resources. In the evaluation of these dimensions, 6 resources were used for validation (Table 01):

Table 01: Prototypes used for validation.

	Prototype 1: sculpture 'Venus of Willendorf'	Plastic sculpture in 1:1 scale, 11cm high, printed from an archive available on the internet of a European museum.
	Prototype 2: sculpture 'Three Shadows' by Auguste Rodin	Small-scale plastic sculpture printed from an archive available on the internet of a French museum.
	Prototype 3: representation of the painting 'Abaporu' by Tarsila do Amaral	Three-dimensional plastic puzzle, printed from a new project consisting of pieces differentiated by color.
	Prototype 4: 'Food Chain' representation	Scheme of small-scale plastic parts, joints, and fittings representing the food chain on top of a perforated wooden base with Braille text.
	Prototype 5: representation of a 'Neuron'	Plastic representation of a neuron, printed from a new project adapted from files found on the internet with texts in braille.
	Prototype 6: representation of a 'Tactile Graphic'	Scheme of magnet parts, joints, and fittings allowing the representation on a clipboard and manual recording of the result of a graph on a bond sheet.

Source: Authors.

Five students were interviewed (A, B, C, D, and E), one with low vision and four with congenital blindness. Two interactions with the resources were performed in classrooms of two schools. The resources were presented to all the students, with a dynamic in which the resources were shown, and the students were questioned about the referred concepts.

In general, the students thought that the resources could be used in the classroom by everyone because learning through three-dimensional resources is much better than just looking at images in books. They also praised the ease of transporting these materials (for their light weight and resistance).

Regarding the sculpture 'Venus of Willendorf' (prototype 1), student A received two copies: one shiny and one matte. Initially, he gave a general description, then indicated that the brighter one hindered his vision preferring the matte one:

> "It's a person, a little chubby, his face is covered, it looks like a kind of abstract figure, it's a woman because she has breasts [...] I'm having some difficulty because, it's shiny, and all the same color only, no contrast, changed the piece

© 2023 Global Journals

for a more matte one, it helped a little, he associated that in the Middle Ages, people were fatter" Student A.

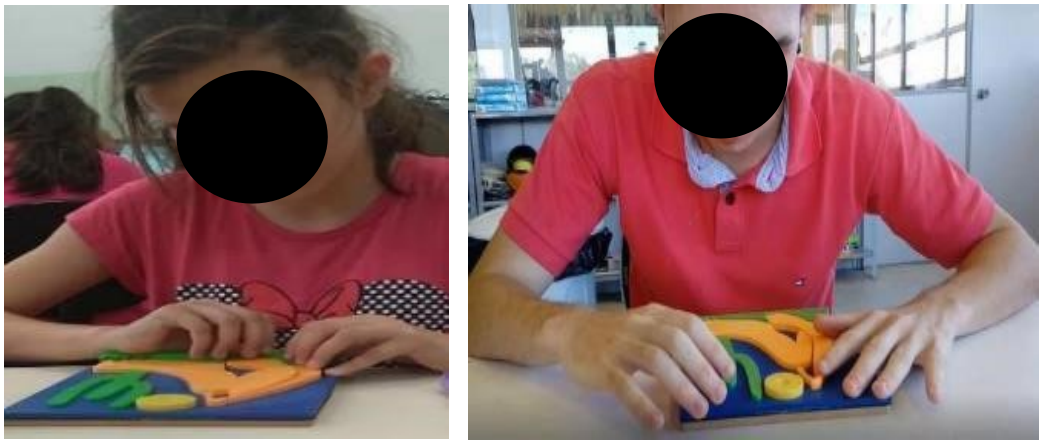
Student D was able to identify the shape alone with tactile perception, and he also thought the original work was larger:

"I believe it's an armless person, or it's glued to the body, it seems to be bald or spiky hair, it has some "little tires", a person that doesn't even have a neck, head well glued to the body, it's a woman, I think the original statue is much bigger, this must be a miniature of the original" Student D.

About the resource 'The Three Shades' (prototype 2), Student A needed an external description because he could not distinguish the content from tactile manipulation. After the external description, he commented on the men depicted and indicated improvements in contrast, robustness, and size. In his account, he highlights the advantage of making the tactile perception of the object, pointing out that usually, Art classes are very abstract:

"The three men, they seem discouraged, by the posture, sad, the hands together, I don't know this work, it also lacks contrast to understand, it seems more fragile, the size should be a little larger [...] It would be different if it had only contact. It helps to understand better when you get the material since art is a very abstract discipline" Student A.

As for the material that represents Tarsila's painting 'Abaporu' (prototype 3), the teacher, in the interview with student A, disassembled the pieces and tried to assemble them. According to the interviewee, the material has merit for the idea, texture, and contrast. Teacher D praises the possibility of being shared with sighted students and indicated the need to improve the friction of the fittings (Figure 01).



Source: Field research.

Figure 01: Students using the didactic resource 'Abaporu' (Art class).

For student D, on the other hand, the material was a little confusing when he was manipulating it. He reported being afraid of breaking the pieces and explained that he found it difficult to assemble. He suggested that each piece should have a different texture (trying to associate the color).

After the external intermediation, the student was able to perceive the foot, the legs, the cactus, and the head he found it different, he even found it funny, and said:

"It must be in the desert, Northeast, and it's, tense there […] not everyone has the same opportunity, they work a lot and don't have time to study" Student D.

Student E remembered her explanations in class when she learned through a drawing made with colored glue. This representation is better for understanding. She suggested widening the fittings to make assembly easier:

"This one is better because the relief is higher with glue. It ends up confusing, or the glue comes off. I give this one a score of 9.5 and glue 1 of 5 to understand. [...] I would change it, and I would leave it more open, more distant one piece from the other, to show it better, especially the "little head", it doesn't show up much" Student E.

In Nature Science class, the resources 'Food Chain' and 'Neuron' (prototypes 4 and 5 respectively) were presented to all students, performing a dynamic in which the resources were shown, and the students were encouraged to participate.

The 'Food Chain' (prototype 4), which student A liked best, as he could easily identify the pieces because of the contrasting colors used. He made the connections quickly and further explained the food chain (Figure 02).

© 2023 Global Journals



Source: Field research.

Figure 02: Dynamic with 'Food Chain' and 'Neuron' resources (Nature Science class).

After the description of the material, student D was able to use the material by identifying the Braille texts, the reliefs of the animals, and the links forming the chain. This material could be used in the classroom and shared among everyone.

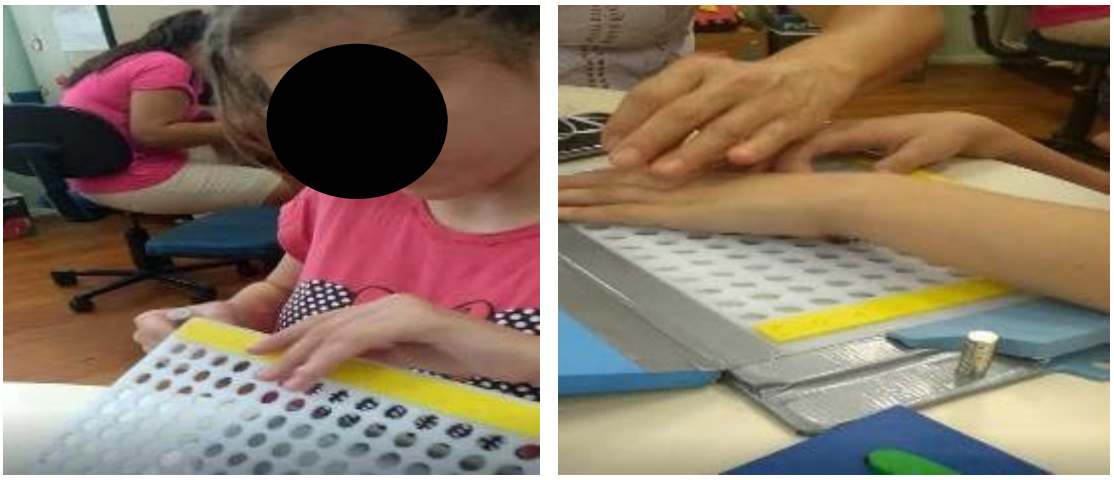
Student E needed a descriptive and conceptual explanation of the material for learning this concept. She praised the suitable shape chosen for the resource and verbalized that it is easy to use and does not hurt.

Regarding the 'Neuron' resource (prototype 5), student D was able to read the braille text (constituent parts of a neuron), but although it is not hurting, he explained that it is screwing up a little. Student E reported that it is easy to understand and does not hurt. She suggested it as an improvement making it a little bigger and sturdier.

After receiving the description, he praised the material and the ease of understanding the concepts through it. She pointed out the issue of size. The student highlights the advantage of tactile reading:

> "I found it much easier, very simple, when we see it in books we have to imagine, now I can understand, I will know the theory and the practice together, I found it very good indeed. That material is a little disproportionate to use in the classroom" Student E.

The Math material, representation of a 'Tactile Graphic' (prototype 6) was presented through integration (Figure 03). Student A liked the resource, highlighting its advantage even for sighted people. He pointed out the lack of negative (a minus sign in high relief with a negative sign and in Braille) and positive, the increase of the magnets' fitting holes, the decrease of the magnets' strength, the division into four quadrants, the more minor points and only ten coordinates.



Source: Field research.

Figure 03: Students using the 'Tactile Graphic' (Math class).

Student B also received an explanation of how it works, praised the material, and said that it would help a lot in the classroom. Like student A, he verbalized difficulty with the strength of the magnets.

© 2023 Global Journals

Student B also received an explanation of how it works, praised the material, and said that it would help a lot in the classroom. Like student A, he verbalized difficulty with the strength of the magnets.

Student C also received an explanation of the operation, and praised the material, saying that it aroused her curiosity and interest. Like students A and B, she expressed difficulty with the strength of the magnets, complaining that her finger hurt during manipulation. Despite this observation, it was the material that student C liked the most.

Student D received the explanation of the Graph and loved the resource, it was his favorite, and interesting. Like the other interviewees, he indicated a decrease in the strength of the magnets:

> "Genius! I'm worse than a child (and smiled). Very good! The Math stuff is the most interesting. You can make fun of it!" Student D.

Student E also received an explanation of use, loved the resource, and could distinguish with tactile perception the different materials used (plastic, EVA - Ethylene Vinyl Acetate, paper, clipboard, and magnet). She emphasized the possibility of using it both in the classroom. Like the other students, she highlighted the strength of the magnets.

> "You have to be very careful with the magnet. It can be used in the classroom and the resource room. It will be good for the resource room teacher who won't have to do so many lessons. He will be able to do homework at school. The material is resistant and easy to use. I wasn't afraid to use it, I liked it very much [...] The magnet is very strong" Student E.

In Room 1, Math class (prototype 6 'Tactile Graphics'), the teacher showed on the blackboard the cardinal, positive and negative points that the material represents in the equation. Those concepts were taught in the previous year. The sighted students did not remember much about the subject and were uninterested.

The visually impaired student wanted to participate more, so Teacher A did a dynamic in which the numbers were spoken, and she was finding them on the Graph and placed the magnets. Student E found the magnets too strong but managed to find the numbers on the 'X' and 'Y' axis of the Cartesian plane. She put on the chain, put on the sheet of paper, and called friends to help her force the drawing board, to build the Graph, missing only a few points. Then she showed it to the whole class and talked about how she did it, and the axes to connect the points: quadrants of the 'X' and 'Y' line points.

The Math teacher suggested an improvement to do with the material with the 4 quadrants because the Graph does not show the negative numbers. It would be better to make the dots smaller or on a larger board.

When asked if they liked it, the sighted students were very positive. According to them, it is easier to learn. It is made of a material that does not break, does not hurt, and is still a lot of fun. The student with low vision also liked the material, reporting that the colors were intense, facilitating contrast and understanding.

The interviews with four teachers point out that the didactic resources were collectively developed involving students, designers, and teachers while expanding their knowledge related to design and 3D printing, mutual learning among designers and users.

Indeed, Raposo and Mól (2010) observed that the elaboration of didactic resources within an inclusive process benefits everyone´s learning and participation. The concern to anticipate the teaching/learning process was noticed to elaborate the demand for resources effectively:

> "The main function is to facilitate the student's understanding and the 3D learning resources end up helping a lot in visualizing the theoretical concepts. It is designed for the blind, so it is projected to be touched, but nothing prevents students that are not impaired from better observing and understanding the textbook content. For the blind it is of great value, we had contact with some blind students, and they were amazed by the material they could have contact with" Teacher C.

> "[...] I think it would be very exciting to use the resources because it could help not only for visually impaired students but for everyone, especially for understanding abstract content" Teacher D.

This point is highlighted by Cast (2014) who states that setting teaching objectives and creating materials and broader forms of assessment makes it possible for everyone to learn according to a common education track.

IV. Discussion

A central finding of this research was the importance students placed on experiencing benefits in using the didactic resources. They pointed out the ease of learning and that they became more independent. One of them revealed that "the didactic resources sparked his curiosity for Math and made it easier to learn." Although some teachers gave examples, the most common use of tactile didactic resources was to boost productivity to lessen the performance gap between people with visual impairments and their non-disabled peers.

According to Cerqueira and Ferreira (2000), it is extremely important to consider that one of the basic problems of the visually impaired, especially the blind, is the difficulty of contact with the physical environment, the lack of appropriate resources, the child's insufficient contact with objects, and the lack of motivation for learning.

© 2023 Global Journals

For this reason, didactic resources and assistive technologies assume fundamental importance in the education of students with visual impairment, especially when it comes to science teaching through images, photos, tables, and videos, contributing to the student's understanding of the content being discussed.

Although no resource learning met all the performance criteria indicated by Cerqueira and Ferreira (2000), they met the majority of them and were well accepted by those involved in the process. The considerations made by all the involved should be considered and adapted for the next resource development having fulfilled the aim of the proposed validation.

The efficiency of a didactic resource is constituted by its ease of use, incentive, or possibilities that the object provides during the teaching-learning process according to Cerqueira and Ferreira (2000). The student, guided by the teacher, uses the teaching recourse employing either physical, perceptual, or cognitive contact. As previously discussed by Béguin (2003), these resources only function if they can be a mediating instrument of learning, once, through its interface the user reaches the proposed objectives.

For Béguin (2016), the objects materialize a pre-conceived model of content and use, so their evaluation is essential to improve and validate the concepts they incorporated in the light of the perception of users and those who conceive them (designers, teachers, and students).

The effectiveness of the developed didactic resources is due to the integration and close collaboration of designers, students, and teachers, which is in agreement with what Naranjo et al. (2000), Cardinali and Ferreira (2010), Cast (2014), and Soares et al. (2020) indicate: that integration is indispensable for developing a didactic resource mental representation as good as possible, making learning meaningful and increasing the teaching effectiveness.

Regarding usability, the didactic resources have their use analyzed according to Borges (2009), looking at the three prerequisites for access and incorporation of the tool (resource): (i) information about the existence; (ii) availability to get them, and (iii) access to them, from the place where the user is.

The main aspects that influenced the use and willingness to use the devices at school followed the characteristics of materials intended for people with visual impairment proposed by Cerqueira and Ferreira (2000) and the scope of usability presented by Stanton and Barber (1996). They cover aspects such as functionality (which included ease of performance opportunities, as well as increased comfort and safety), accessibility of the device, and the school's readiness to integrate them into school activities, i.e., to adapt them to the task. The results showed that experiences and opinions about the devices influenced their use and even determined whether they were used.

Exploratory visits and interviews confirmed Bersch's (2017) proposal that resources that were accessible and integrated into activities were more likely to be used than those that were not. This kind of concern arises as educators are faced with a lack of methods and alternatives for learning (FERREIRA; DICKMAN, 2007) and this lack of tactile/concrete resources is noticeable even for the education of sighted students.

In addition, as discussed by Vaz et al. (2012), the use of didactic resources is essential in the appropriation of concepts, because they provide the student with greater comfort and safety in school-related activities. As pointed out by teachers and students themselves, the reasons for using them rely on their speed, smoothness, safety, and comfort. This indicates the students' perception of the benefits based on their own experiences of facilitated operation rather than on secondary information provided by others.

According to the results, the effective use of didactic materials, tactile, is not so simple, because, according to Silveira (2010), teachers need to acquire skills so that they can contribute to the construction of dynamic and inclusive educational approaches so that students with visual impairment have access to the same learning opportunities and participation in school life and in the community that sighted students have.

For Boucher (2007), usability could be confirmed through this interaction, when the user can work effectively, efficiently, and satisfactorily, always seeking to achieve the proposed goals in each circumstance.

Finally, for the application of Rasch Analysis it was considered the assumption that with greater ease of interpreting an item or product feature, given equivalent abilities of potential users, there would be a correlation between the lesser difficulty of interpreting the item with the effectiveness of that item for the user and, therefore, of delivering what is expected for the tactile feature.

The Rasch Analysis was based on the parameters determined as 150 for maximum iteration number, 0.005 for convergence criteria, and 0.3 for regulation of extreme values in Rasch Analysis as shown in Table 02.

© 2023 Global Journals

Table 02: Rasch Analysis Results.

Item	Difficulty	Std Error	WMS	Std WMS	UMS	Std UMS
Size	0.82	0.84	1.13	0.68	1.14	0.68
Visual Stimulation	0.82	0.84	1.13	0.68	1.14	0.68
Fidelity	0.09	0.89	0.87	-0.34	0.79	-0.43
Resistance	-0.86	1.11	0.95	0.16	0.79	0.03
Safety	-0.86	1.11	0.95	0.16	0.79	0.03
Tactile Significance	-2.22	1.88	0.06	-0.81	0.05	-0.85
Acceptance	-2.22	1.88	0.06	-0.81	0.05	-0.85

Source: Authors.

Aktulun (2019) resumes the interpretation of parameter-level mean-square fit statistic in Rasch Analysis (Table 03) and points out that the ideal range for WMS and UMS values has been determined to be between 0.50 and 1.50 and the ideal coverage for standardized WMS and UMS values is between -1.90 and 1.90.

Table 03: Interpretation of parameter-level mean-square fit statistics.

Criteria	Range	Comments
Weighted Mean Square and Unweighted Mean Square	> 0.20	Makes the scale distort the features of the subject matter and degrade the quality of
	1.5 – 2.0	Unproductive for the construction of measurement, but not degrading.
	0.5 – 1.5	Productive for measurement.
	< 0.50	Less productive for measurement, but not degrading. May produce misleadingly high reliability and separation coefficients.
Standardized WMS (Std WMS) and Standardized UMS (Std UMS)	≥ 3.0	Data is very unexpected if they fit the model (perfectly), so they probably do not. But, with In a large sample size, substantive misfit may be small.
	2.0 – 2.9	Data is noticeably unpredictable.
	-1.9 – 1.9	Data have reasonable predictability.
	≤ -2.0	Data are too predictable. Other "dimensions" may be constraining the response patterns.

Source: Aktulun (2019, p. 68).

V. Final Considerations

The lack of awareness and reflection on the educational practice considering the precariousness of the teaching work in Public Education - including poor training, financial and prestige devaluation, and the lack of adequate structural and material conditions - hinder the fulfillment of rights established by the legislation related to the schooling of people with disabilities.

It is important to encourage these teachers to carry out an educational practice that is, in fact, transformative. In addition, there is also the need to raise the awareness of the regular classroom teaching staff. This commitment should be collective and the whole school team should be involved, especially because, in most cases, these teachers are trained in only one area of knowledge, not being trained to teach other subjects.

The issue of three-dimensional materials is still somewhat recent, but there is a growing interest in applying such technology in special education and social inclusion. Not only the individual learning of blind or low-vision students is at stake in the use of 3D-printed didactic resources. It is noticeable that blind people benefit when they work with concrete models and can analyze how the schemas and representations work. Knowledge becomes more real and meaningful, especially when these resources are used in regular classrooms. The exchange of knowledge among players within the educational process is invaluable.

The presented didactic resources were validated providing these teachers the possibility of working with a different, expressive, and necessary material, helping them to perform an educational work that makes sense. Touching is how blind and low-vision people, in social interaction, understand the world.

Analyzing the interviews and reports produced during this research, it became clear how fundamental this project has been for the participating students. The validation of the didactic resources is viewed to evaluate the effectiveness of the tested prototypes put into use; in this sense, we can highlight the inclusive nature of the

© 2023 Global Journals

resources, praised by both the visually impaired and the sighted students.

The 3D-printed learning resources applied in the regular classroom acted as agents of inclusion, attracting sighted students to work together with visually impaired students, resulting in school and social inclusion.

The resources developed are not enough to act alone to transmit knowledge. Like other types of didactic resources, the ones presented here help teachers to transmit knowledge to students, and students to learn more appropriately.

Pedagogical guidelines and usage guides accompany the 3D printed didactic resources, but, even though these were detailed, the teachers felt it was difficult for them to use the materials, possibly due to the lack of preparation in dealing with new technologies. Teachers confirmed the potential of these resources for teaching visually impaired students and for use in regular classrooms to complement the learning of sighted students.

The results indicated that the impact of these new representations (didactic resources of tactile and universal perception) and interactions between the involved actors (mutual design process) anticipated inadequacies of the process, since the evaluated prototypes obtained few indications of improvement. Furthermore, according to the reports, the materials aroused interest and curiosity on the part of the users, aspects favorable to the stimulation of learning.

From the verbalizations of the interviewees, it was possible to conclude that the resources studied favored the teaching and learning process, as in several moments, the students were able to easily use the materials and understand the concepts presented. The evaluated resources were considered by the users as learning mediators, offering through tactile perception, the achievement of the proposed teaching objectives.

From Rasch Analysis became possible to see that the items Tactile Meaning and Acceptability (WMS = 0.06; UMS = 0.05) are problems. Although those items should be suppressed from analysis, their values of standardized WMS and UMS can be considered. That analysis indicates the greater effectiveness of the characteristics of Tactile Significance, Acceptance, Safety, Resistance, Fidelity, Visual Stimulation, and Size, in this order for the resources produced. It also demonstrates the need to improve the quality of the questionnaire applied for users and designers, especially regarding product characteristics Tactile Significance, and Acceptance.

Considering the research results it is possible to accept hypothesis "a" (Ha0: the use of three-dimensional didactic resources enhances the learning of visually impaired students), hypothesis "b" (Hb0: If Hypothesis "a" is accepted, then three-dimensional didactic resources promote school inclusion of the visually impaired students) and the hypothesis "c" (Hc0: If Hypothesis "a" is accepted, then three-dimensional didactic resources stimulate greater knowledge apprehension by visually impaired students).

This research throws light on the challenge of public policies that do not present satisfactory results in reconciling engineering, education, and health in the validation of didactic resources. In this sense, it is up to the research to point out its limitations. In this way, we tried to propose techniques and methods that can materialize some projects with content capable of meeting the fragility of public policies in the context of inclusive education.

The research also highlights the didactic resource as being the mediation of the activity between the teacher and the student, as if it were a link for learning in inclusive education, seeking to meet assessment steps.

Acknowledgment

The authors would like to thank the National Council for Scientific and Technological Development (CNPq) for funding the research project n. 442261/2016-0 entitled "VerTátil: development of didactic resources for the teaching and learning of visually impaired persons" and the Coordination for the Improvement of Higher Education Personnel (CAPES) for funding the scholarship for one of the authors (TURINO, 2019).

References Références Referencias

1. AGNOL, A.D.; SALTON, B.P.; STRAPAZZON, J.A.; GOMES, M.G. (2015) O público-alvo da educação especial na perspectiva da educação inclusiva. In: SONZA, A.P.; SALTON, B.P.; STRAPAZZON, J. O uso pedagógico dos recursos de tecnologia assistiva. Bento Gonçalves: IFRS, 2015.
2. AKTULUN, Ö. U. (2019) "Validity and Reliability Study of Turkish Version of Number Sense Screener for Children Aged 72-83 Month". Journal of Education and Training Studies, Vol. 7, N. 2. DOI: 10.11114/jets.v7i2.3935. Available at: ttps://doi.org/10.11114/jets.v7i2.3935.
3. BÉGUIN, P. Design as a mutual learning process between users and designers. Interacting with Computers 15 (2003) 709-730.
4. BÉGUIN, P. (2016). A concepção dos instrumentos como processo dialógico de aprendizagens mútuas. In: FALZON, P. (ed) Ergonomia construtiva. Blucher: São Paulo.
5. BERSCH, R. (2017) Introduction to Assistive Technology. Porto Alegre: Assistive Technology and Education, 20 p. Available at: <http://www.assistiva.com.br/Introducao_Tecnologia_Assistiva.pdf>.
6. BORGES, J. A. S. (2009). Do Braille ao DOSVOX: diferenças nas vidas dos cegos brasileiros. 2009.

© 2023 Global Journals

327 f. Tese (Doutorado em Ciências em Engenharia de Sistemas e Computação) – Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, 2009.
7. BOUCHER, A. Ergonomie Web - Pour des sites web efficaces. Paris: Éditions Eyrolles, 2007.
8. BRASIL (2001). Ministry of Education. Programa de Capacitação de Recursos Humanos do Ensino fundamental: Deficiência Visual. V.3. Secretariat of Special Education, Brasília (DF), 2001.
9. BRASIL (2016) Statistical Synopsis of Higher Education 2015. Brasília, INEP: 2016. Available at: <http://portal.inep.gov.br/basica-censoescolar-sinopse-sinopse>. Accessed on: 24/03/2018.
10. BRASIL (2009). Subsecretaria Nacional de Promoção dos Direitos da Pessoa com Deficiência. Comitê de Ajudas Técnicas. Assistive Technology, Brasília: CORDE, 2009. 138 p.
11. CARDINALI, S.M.M.; FERREIRA. E A.C. (2010). A aprendizagem da célula pelos estudantes cegos utilizando modelos tridimensionais: um desafio ético. Revista Benjamin Constant, v.1, n.46.
12. CAST (2014). Design for Learning guidelines. Massachusetts Department of Elementary and Secondary Education, NEC Foundation of America. The John W. Alden Trust, and the Pinkerton Foundation.
13. CERQUEIRA, J. B.; FERREIRA, M. A. (2000) Os recursos didáticos na educação especial. Benjamin Constant Magazine, Contemporary education collection. Rio de Janeiro: IBC, n. 5.
14. DA SILVA FILHO, R. B.; BARBOSA, E. S. C. (2015) Educação Especial: da prática pedagógica à perspectiva da inclusão. Educação por Escrito, v. 6, n. 2, p. 353-368.
15. FERREIRA, A. C.; DICKMAN, A. G. Ensino de Física a Estudantes Cegos na Perspectiva dos Professores. In: Atas do VI Encontro Nacional de Pesquisa em Ensino de Ciências, n.6. Florianópolis, Santa Catarina, 2007.
16. FISCHL, C.; FISHER, A. G. (2007). "Development and Rasch Analysis of the Assessment of Computer-Related Skills", Scandinavian Journal of Occupational Therapy: Vol. 14, p. 126-135. DOI: 10.1080/11038120600840192.
17. INEP. INSTITUTO NACIONAL DE PESQUISAS EDUCACIONAIS ANÍSIO TEIXEIRA (2017). School Census 2016: statistical notes. Brasília, INEP. Available at: <http://portal.mec.gov.br/docman/fevereiro-2017-pdf/59931-appcenso-escolar-da-educacao-basica-2016-pdf-1/file>. Accessed on 25/04/2018.
18. IBGE. INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA (2012) Cartilha do Censo 2010: Pessoas com Deficiência / Luiza Maria Borges Oliveira / Secretaria de Direitos Humanos da Presidência da República (SDH/PR) / Secretaria Nacional de Promoção dos Direitos da Pessoa com Deficiência (SNPD) / Coordenação-Geral do Sistema de Informações sobre a Pessoa com Deficiência; Brasília: SDH-PR/SNPD.
19. LAPLANE, A.L.F.; BATISTA, C. G. (2008) Ver, não ver e aprender: a participação de crianças com baixa visão e cegueira na escola. Caderno Cedes, Campinas, v. 28, n.75, p.2019-227.
20. NARANJO, M. P. L.; MARTIN, A. H.; GOMEZ, M. C. S. (2000). Da integração à escola inclusiva na Espanha. Estilos clín., São Paulo, v. 5, n. 9, p. 8-31.
21. PAIM, C. M. C. (2002). School integration of the blind student: from interaction to action, 182 f. Dissertation (Master's in Education), State University of Feira de Santana, Bahia.
22. RAPOSO, P. N.; MÓL, G. S. (2010). A diversidade para aprender conceitos científicos: a ressignificação do ensino de ciências a partir do trabalho pedagógico com alunos cegos. In: SANTOS, W.L.P.; MALDANER, O.A. (Orgs.). Ensino de química em foco. Ijuí: Ed. Unijuí, p. 287-311.
23. RASCH, G. (1964a). "An Individual-Centered Approach to Item Analysis with Two Categories of Answers". UNESCO Reader (?). Available at: https://www.rasch.org/memo19642.pdf.
24. RASCH, G. (1964b). "Objective Comparisons". Lectures are given at the UNESCO Seminar, Voksenåsen, Oslo. Available at: https://www.rasch.org/memo1964.pdf.
25. RASCH, G. (1966a). "An Informal Report on the Present State of a Theory of Objectivity in Comparisons". Proceedings of the NUFFIC International Summer Session in Science at "Het Oude Hof", The Hague, 14.-28. July. Available at: https://www.rasch.org/memo1966.pdf.
26. RASCH, G. (1966b). "An Item Analysis which takes Individual Differences into Account". British Journal of Mathematical and Statistical Psychology, Vol. 19, 49-57.
27. RASCH, G. (1980)."Probabilistic Models for Some Intelligence and Attainment Tests", Chicago: University of Chicago Press.
28. SANTOS, M. J. (2007) A escolarização do aluno com deficiência visual e sua experiência educacional. Dissertação (Mestrado), Universidade Federal da Bahia: Salvador.
29. SILVEIRA, C.M. (2010). Professores de alunos com deficiência visual: saberes, competências e capacitação Porto Alegre/RS. Faculdade de Educação, Pontifícia Universidade Católica. Dissertação (Mestrado em Educação).
30. SOARES, J. M. M.; FONTES, A. M.; FERRARINNI, C. F.; BORRÁS, M. A. A. (2020). Multicase study on product design in the area of assistive technology in Brazil, Disability and Rehabilitation: Assistive Technology, 15:4, 442-452, DOI: 10.1080/17483107.2019.1587019

© 2023 Global Journals

31. STANTON, N. A.; BARBER, C. (1996). Factors affecting the selection of methods and techniques prior to conducting a usability evaluation. In: JORDAN, P. W.; THOMAS, Usability evaluation in industry. London: Taylor & Francis, p. 39-48.
32. STEMLER, S. E.; NAPLES, A. (2021) "Rasch Measurement v. Item Response Theory: Knowing When to Cross the Line", Practical Assessment, Research, and Evaluation: Vol. 26, Article 11. DOI: https://doi.org/10.7275/v2gd-4441. Available at: https://scholarworks.umass.edu/pare/vol26/iss1/11.
33. THIOLLENT, M. (2011) Research-action methodology. 18. ed. São Paulo: Cortez, 136 p.
34. TOLEDO, C. E.; PEREIRA, D. R. (2007) Deficiência visual no Ensino Fundamental. In: visual. 1 ed. Brasília: MEC.
35. TURINO, T. A. S. (2019) Validação de material didático para pessoas com deficiência visual: construção mútua entre usuários e projetistas. Dissertação de Mestrado. Universidade Federal de São Carlos.
36. VAZ, J. M. C.; PAULINO, A. L. S.; BAZON, F. V. M.; KIILL, K. B.; ORLANDO, T. C.; REIS, M. X.; MELLO, C. (2012). Material didático para ensino de Biologia: possibilidades de inclusão. Revista Brasileira de Pesquisa em Educação em Ciências, São Paulo, v. 12, n. 3, p. 1-24.

© 2023 Global Journals

This page is intentionally left blank

© 2023 Global Journals

Global Journal of human-social science: G
Linguistics & Education
Volume 23 Issue 2 Version 1.0 Year 2023
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-460X & Print ISSN: 0975-587X

Research on the MPA Education and Training Model with "Internal Structure" Teaching Perspective as the Core and "Double Loop" as the Main Body

By Zhang Bin & Hong Xuemin

Inner Mongolia University

Abstract- Over the past two decades, China's MPA education has undergone a transformation from high-speed development to high-quality development. However, there are still problems and challenges in the current development of MPA education in China. In the new era, MPA education should take the opportunity of comprehensive improvement and innovation of education to reform its teaching and innovate its training methods. Change the traditional "external transmission" teaching perspective and build an "internal structure" teaching perspective with a dynamic knowledge perspective, a proactive student perspective, and an active learning perspective as the core. Give full play to the joint efforts of schools, government, and society, and form a "double-loop" talent training model that integrates theoretical knowledge and management practice. Promote MPA students to achieve research-based learning, cooperative learning, social learning, and innovative learning, enhance the quality of talent cultivation, and help to achieve a new realm of "Chinese governance."

Keywords: MPA education; inner constructivism teaching view"; double loop mode.

GJHSS-G Classification: DDC Code: 371.3078 LCC Code: LB1043

RESEARCHONTHEMPAEDUCATIONANDTRAININGMODELWITHINTERNALSTRUCTURETEACHINGPERSPECTIVEASTHECOREANDDOUBLELOOPASTHEMAINBODY

Strictly as per the compliance and regulations of:

Research | Diversity | Ethics

© 2023. Zhang Bin & Hong Xuemin. This research/review article is distributed under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0). You must give appropriate credit to authors and reference this article if parts of the article are reproduced in any manner. Applicable licensing terms are at https://creativecommons.org/licenses/by-nc-nd/4.0/.

Research on the MPA Education and Training Model with "Internal Structure" Teaching Perspective as the Core and "Double Loop" as the Main Body

Zhang Bin [α] & Hong Xuemin [σ]

Abstract- Over the past two decades, China's MPA education has undergone a transformation from high-speed development to high-quality development. However, there are still problems and challenges in the current development of MPA education in China. In the new era, MPA education should take the opportunity of comprehensive improvement and innovation of education to reform its teaching and innovate its training methods. Change the traditional "external transmission" teaching perspective and build an "internal structure" teaching perspective with a dynamic knowledge perspective, a proactive student perspective, and an active learning perspective as the core. Give full play to the joint efforts of schools, government, and society, and form a "double-loop" talent training model that integrates theoretical knowledge and management practice. Promote MPA students to achieve research-based learning, cooperative learning, social learning, and innovative learning, enhance the quality of talent cultivation, and help to achieve a new realm of "Chinese governance."

Keywords: MPA education; inner constructivism teaching view"; double loop mode.

I. Introduction

The Master of Public Administration (MPA) is a graduate-level education program based on the discipline of public administration and other related fields. It is an essential pillar of higher professional graduate education in the humanities and social sciences, along with the Master of Laws (JM) and Master of Business Administration (MBA) (Chen Zhenming, 1999). The goal of MPA education in China is to cultivate talents who are both competent and virtuous, who meet the needs of socialist modernization construction, who have a mastery of advanced methods and techniques in public administration analysis, and who are high-level, applied, and composite leaders, managers, and other public service personnel who are familiar with public administration or public policy practices. The 5th Plenary Session of the 19th CPC Central Committee proposed "Building a High-Quality Education System" during the 14th Five-Year Plan period and the goal of building a solid country by 2035, marking a new era of "Comprehensive Quality Improvement and Innovation" in Chinese education. Since the official launch of MPA professional degree education in China in 1999, after more than 20 years of development, MPA education has shifted from high-speed growth to high-quality product. In the new era, MPA professional degree education should also be comprehensively improved and innovated, deepen educational reform, build an MPA professional degree education training model with "internal construction" teaching philosophy as the core and "double loop" as the main body, and promote the sustainable development of Master of Public Administration professional degree education.

Author α σ: School of Public Administration, Inner Mongolia University, Hohhot, China. e-mail: zhb0927@163.com

II. The Necessity of Reform in the MPA Professional Degree Education Training Model

The government and public organizations have a significant responsibility in managing public affairs, solving general problems, and realizing public interests. Public administrators are entrusted by the state and the people to represent the government and public organizations in exercising public power and engaging in daily public administration activities. The effectiveness of public administration activities is closely related to the realization of shared interests, the long-term stability and peace of society, and the prosperity or decline of the country. In June 2018, General Secretary Xi Jinping emphasized at the Central Foreign Affairs Work Conference that "currently, our country is in the best period of development since modern times, and the world is in the greatest changes in a hundred years, both of which are interwoven and stimulate each other." The global epidemic of the novel coronavirus pneumonia also highlights the lack of a global governance framework. In the context of coexisting opportunities and challenges, public administrators need to have systematic thinking skills, a broad knowledge of international perspectives, professional public administration literacy, and the ability to learn actively.

Conducting MPA education can effectively compensate for the shortcomings in the knowledge level and structure of domestic public administration personnel(Xue Lan,1999). Since the launch of the master's degree education in public administration in 1999, it has experienced a historic leap from nothing to something (Han Xi Xiang, 2020), from small to large, and from weak to vigorous. It has achieved a transformation from high-speed development to high-

© 2023 Global Journals

quality development, forming a Chinese characteristic MPA education mode. However, over 20 years of education practice have gradually revealed some problems that are commonly present in MPA education. There is a particular gap between the current training methods of MPA education in China and actual needs. The "import-style" teaching view has been the main focus in teaching, and the teaching methods have remained centered on classroom lectures. Teachers focus too much on memorizing knowledge, and simplify teaching goals to mastering the textbook content. Localized cases and interactive teaching content are insufficient. Students lack an active learning attitude, passively accept theoretical knowledge, lack awareness of cooperation and communication, and not only do not master theoretical knowledge, but cannot apply professional theoretical knowledge to analyze and solve practical management problems. In addition, MPA education in different schools varies in terms of course setting, faculty allocation, and teaching content, leading to a lack of consistency in the quality of MPA education.

In short, despite more than 20 years of development, China's MPA education has made leapfrog, comprehensive, and three-dimensional progress, achieving remarkable results and training many professional public administration personnel for the country. However, with the rapid development of the economy and society, the scope and difficulty of public social affairs management have increased, which poses higher requirements and expectations for China's general administration discipline and MPA education. In the context of the era of comprehensive quality improvement and innovation in education, it is necessary to carry out teaching reform of MPA education, innovate training methods, and promote the high-quality development of graduate education in public administration.

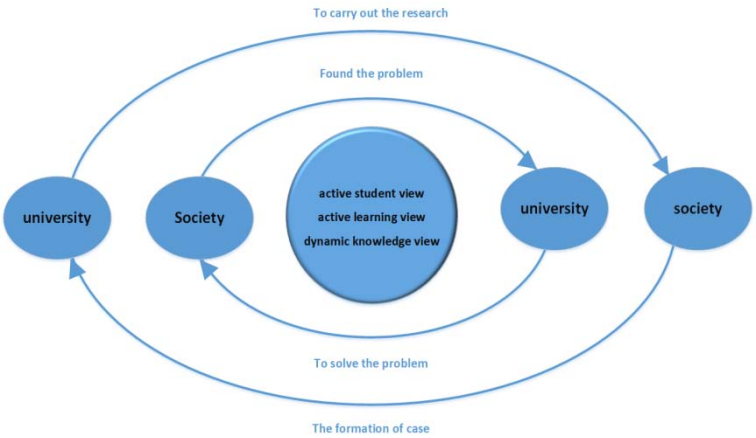


Figure 1: MPA Education and Training Model with "Inner Constructivism" Teaching Concept as the Core and "Double-Cycle" as the Main Body

III. Building an "Internal Structure" Teaching Philosophy

The education model of China's MPA has always been based on the "import-style" teaching concept, mainly reflected in the following aspects. Firstly, it is a static view of knowledge, which believes that the knowledge of public administration is objectively existent and can be increased through external migration and superposition. The main task of the teacher is to transmit knowledge to the students' minds through classroom teaching. Secondly, it is a mechanical student view, which believes students are blank papers and can only mechanically grasp knowledge. The process of education by the teacher is to use the knowledge prepared in advance to draw on the blank paper. Finally, it is a passive view of learning, in which the learning process is the transfer of knowledge from outside the student to the student's brain through the teacher's lecture. It is believed that learning is a process of inputting knowledge from outside to inside, in which the teacher is the leader, responsible for maintaining order, transmitting information, and the student must fully accept the rules set by the teacher. MPA education is committed to cultivating high-level applied and composite talents. Still, under the influence of the "import-style" teaching concept, it only emphasizes that students need to "learn to achieve" and ignores "learn to apply," and has caused a series of adverse effects, such as the student's alienation from the main body of teaching activities, the simplification of knowledge structure, and the weakening of practical ability. Therefore, MPA education should change the traditional teaching and build a "self-construction-style" teaching concept. The "self-construction-style" teaching concept refers to the teaching concept in which the learner realizes the self-construction of new knowledge through cooperative learning and communication, the guidance of the teacher, and the transformation and reorganization of

© 2023 Global Journals

existing knowledge and experience (Zhou Yicheng, 2016). This teaching concept has completely different views of knowledge, students, and learning compared to the "import-style" teaching concept.

a) Dynamic knowledge perspective

The dynamic knowledge view followed by the constructivist teaching approach in public administration professional degree education is as follows: Public administration professional knowledge is constructed through the interaction between the subject and object, and its meaning is presented through both the text and the learner's mind. The truth should be approached through the verification of experience (Zhou Yicheng, 2016).

In terms of knowledge acquisition, public administration professional knowledge is synthesized and complexly grown within the brain. The addition of knowledge by students is not solely dependent on the teacher's classroom lecture, but also includes the accumulation of their own experiences, cooperation, and communication between students, and inspiration from public administration cases, etc. The teacher's main task is not to give mechanical classroom lectures, but to guide students through diverse teaching methods such as situational teaching and case, allowing students to combine textbook theory with work experience and transform it into new knowledge points.

From the perspective of knowledge carriers, lesson plans, and textbooks do not have absolute truth. Knowledge evolves with time, and lesson plans and textbooks have a certain lag in some aspects, requiring teachers to change their inherent thinking of relying solely on textbooks and keep up with new trends and knowledge points. In addition, public administration knowledge is only an incomplete induction of public administration practice; teachers should not rigidly transmit public administration knowledge to students as an utterly correct thing, but instead, encourage students' critical thinking and allow them to express different opinions and perspectives.

b) Active student perspective

The internal structure of teaching in the Master of Public Administration (MPA) professional degree education follows an active student perspective: students are not passive objects mechanically receiving knowledge, but rather active individuals with actual public administration experience and expertise, who can use their subjective initiative to construct knowledge dynamically.

To apply for MPA, a candidate must have a college degree or above and three years or more of work experience. This indicates that MPA graduate students are learners with special public administration experience and knowledge, not blank sheets of paper. Therefore, teachers should respect and understand this knowledge and experience, pay attention to students' emotions and values, and strive to grow together in the teaching process, rather than being an authoritative figures during the teaching process.

MPA graduate students have personal initiative, not mechanically accepting the teacher's knowledge infusion. They can combine textbook theory with practical experience, using approach to solve management problems in real life, thereby deepening their understanding of public administration knowledge. On the other hand, they can use theoretical knowledge to research actual management issues and form localized cases with the help of various forces, such as the government and the school, developing localized points with local characteristics.

c) Proactive learning perspective

The pedagogical philosophy followed in the structured teaching of the Master's degree education in Public Administration is based on the principle of active learning: learning is a process of knowledge construction that takes place through the student's active exploration, close collaboration, and the teacher's proactive guidance and flexible assistance.

Learning is a process in which graduate students in Public Administration actively construct knowledge, rather than relying the passive transmission of knowledge from teachers. In this process, students must change their passive thinking and dare to discover problems, ask questions, and communicate and cooperate with their classmates. Graduate students in Public Administration share, debate, and inspire each other through cooperative learning, establish a learning community, and lay a solid team foundation for constructing new knowledge. In addition, teachers need to clarify their practical orientation and are not the dominant or authoritative figures, but are the students' collaborative partners, listeners, and guides. Teachers should establish an excellent equal, and cooperative relationship with students, listen to their ideas, and encourage the development of critical and innovative thinking. In terms of time allocation, students should be given sufficient time to express and exchange their views and plans. In terms of space allocation, it is necessary to ensure the smooth progress of cooperative learning, and forms such as roundtable meetings can be adopted to achieve the presentation and debate of multiple perspectives and ultimately promote the formation of new knowledge.

IV. Build a "Double Loop" Talent Cultivation Model

The cultivation of a Master of Public Administration degree mainly includes two types of graduate students: bachelor's degree graduates and professional degree graduates. Compared to bachelor's degree graduates, professional degree graduates in public administration not only have specific research

© 2023 Global Journals

abilities, but also have more vital practical abilities, and can closely integrate theory and practice. The cultivation method of professional degree graduates in public administration should meet two primary conditions. First, it should meet the needs of students' development. That is, students should have professional public administration literacy and relevant knowledge and skills. Second, it should meet the needs of social growth and career development, and provide society with high-quality applied management personnel. The "double-loop" talent cultivation mode is a cultivation mode that can meet these two essential conditions. The "double-loop" talent cultivation mode of professional Master of Public Administration is an applied and composite talent cultivation mode that aims to fully tap the joint efforts of schools, governments, and society, achieve a close integration of theoretical knowledge and management practice, double-loop, and promote the coordinated development of individual learning and organizational learning. This mode can fully mobilize various forces, such as government, schools, society, etc., to work together to cultivate professional talents, and achieve full integration of theoretical knowledge and practical work (Li Fei, 2018).

a) Inner-loop training path from society to school

The inner loop of the "double loop" talent cultivation path refers to students returning from society to school for learning. Graduate students in public administration have at least three years of work experience and can bring the problems discovered in work back to the classroom. Through teachers' knowledge lectures and interactive communication among students, they can think about the issues, boldly propose hypotheses, carefully consider and reason to validate, and use what they have learned to provide solutions to the issues, thus guiding practical work. The professional experience of MPA graduate students gives them rich practical experience, which is what the school lacks. With the support of theoretical knowledge, MPA graduate students can better integrate practice and theory.

The internal loop process emphasizes practical experience. Taking real-life public administration problems as opportunities, stimulates students' interest in learning theoretical knowledge and learning by doing, using theoretical knowledge to solve real problems, thus also giving students a deeper understanding of theoretical knowledge. Compared to simply being taught by the teacher, learning knowledge with questions not only enhances students' learning interest but also helps students have a deeper understanding of theoretical knowledge. At the same time, it also helps teachers gain new insights into theoretical knowledge, thus achieving mutual growth in teaching.

Building an internal loop cultivation path from society to school requires continuously improving the applicability of MPA education. In course design, courses with high relevance to MPA graduate work should be appropriately increased, thus stimulating students' interest in active learning. In teaching content, besides reflecting the characteristics of theory, knowledge, and system, as a professional education, educational content must also be closely combined with social reality. In teaching methods, not only traditional classroom teaching methods are needed, but also methods with strong applicability, such as case teaching and scenario simulation.

b) Outer-loop training path from school to society

The outer loop of the "double loop" talent training path refers to students learning from society after they leave school (Ma Baobin, 2011). This path is the focus of a new talent training model. In the learning process at school, students compare the theories they have learned with their real-life experiences, and thus they have the desire to use ideas to solve real-life issues or to verify what they have learned. Students refine and summarize the theories and real-life problems they have learned, and thus they initially form research topics. When students return to practical work in society, they conduct research on these topics, which combines their theoretical learning with practical experience, thereby improving both their theoretical knowledge and useful ability.

During the research process, students are required to have the ability to plan and solve complex problems, which enhances their team cooperation and communication skills. In addition, the research process promotes close collaboration between the school and government departments, helping to solve the problems that the government departments urgently need to address. After the research is completed, the results can be processed and organized into localized public cases, which can eventually be fed back into teaching activities.

The two loops in the talent training model for a Master of Public Administration degree are interdependent and must not be lacking. They develop together in a continuous loop, achieving a close combination of theory and practice. The "double loop" talent training model views the learning process as a phased and hierarchical learning process. This process values the learner's previous work experience, requires students to find problems in their actual work and solve them using the knowledge they need, and also requires students to return theoretical questions generated through reflection to the practical work in society, collecting materials through field research, forming cases, and testing, developing, and innovating theoretical knowledge.

© 2023 Global Journals

V. Analysis of Advantages of the Cultivation Model with "Inner Constructivism" Teaching Philosophy as the Core and "Double Loop" as the Main Body

The MPA education and training model with "internal constructivism" teaching philosophy at its core and "double loop" as its main body is a new type of educational model and also a suitable educational model for training public administration master's degree students in the context of comprehensive quality improvement and innovation in education. The creation of this model is mainly reflected in the following four aspects:

a) Research-oriented learning

Compared with academic research graduate students, public administration professional degree graduate students, although they emphasize practicality more, have the commonality of research. This requires that in MPA education, problem-oriented approaches should be taken, students should be driven to learn by doing through specific problems or localized cases. Their research ability should be improved through research projects.

Under the new training model, there is an emphasis on a dynamic view of knowledge, an active student view, and an active learning view. Teachers are no longer mechanically outputting knowledge, but rather, they cleverly use problems to stimulate students' learning interests. Students solve problems and validate theories by combining the difficulties they encounter with theoretical knowledge through active learning, which ultimately enhances their professional literacy and accumulates their knowledge and skills. Research-based education requires changing the traditional teacher-student relationship. The relationship between teacher and student is no longer simply a relationship between the guide and the guided, but a friendly and cooperative partnership. In research projects, teacher-student interaction and communication will be promoted. Students will draw more professional management knowledge from their contact with teachers, while teachers will also gain more practical management experience from their interaction with students, realizing the expected growth of teachers and students.

b) Collaborative learning

The MPA education and training model with an "Internal Structure" teaching perspective as its core and a "Double Loop" as its main body emphasizes the importance of learning teams. The learning process is a multi-directional communication rather than a self-closed isolated island, requiring cooperative learning with classmates. The "Double Loop" training model divides students into different learning groups based on the content of the topic or project and personal interests and hobbies, allowing students to engage in full communication in the learning group, constantly recognizing themselves, recognizing others, establishing a sense of cooperation and group awareness.

Every member of the public administration professional degree graduate program must fully participate in the divided collective learning, using collaborative wisdom to solve practical problems and increase theoretical knowledge. In this process, teachers need to play a good role as a guide, assisting students in mastering theoretical knowledge and clarifying their strengths and weaknesses. The practice has shown that cooperative learning is more efficient than individual learning, and can also ignite different thinking sparks. The exchange of other ideas can make each learner gain more other ideas. In addition, this kind of cooperative learning is beneficial for students to better integrate into the collective life of actual work, abandon self-centered thinking and ideas, value mutual communication and communication among the joint, and thus more favorable for solving practical problems and spreading theoretical knowledge.

c) Social learning

The training goal of public administration professional degree education in our country is to cultivate high-level, applied, and compound talents familiar with public administration or public policy practices. The way to achieve this goal is to connect theory with practice. The new training model emphasizes the "inherent" teaching concept and the "double-loop" talent training model, expanding talent training to society. This model makes the connection between schools, government, and society more closely. The problems and research projects in the "double-loop" talent training model are mainly from the difficulties encountered by students in their work or issues that urgently need to be solved by government departments. By analyzing and summarizing these problems and conducting on-site surveys, not only the solutions to the issues are put forward, but also the ability of students to discover, analyze, and solve problems is improved. In addition, for students, the fundamental theories in textbooks and the basic knowledge taught by teachers are indirect experiences, and they should be allowed to have critical thinking to analyze and think. In real-world social practices, students form their knowledge system through communication and interaction with the outside world, connecting previous experiences and contemporary society, thus getting closer to the essence of the theory.

d) Innovative learning

In traditional "outward-oriented" teaching views, learning is understood as a passive input of knowledge

© 2023 Global Journals

from outside to inside. However, a new type of learning has been proposed with a "construction-oriented" teaching view as the core and a "double-loop" as the main body, which helps students to learn and learn how to learn actively. This new training model advocates innovative learning and enables students to have a broad knowledge, vision, and creative thinking in their work and learning. Public administration professional degree education improves students' knowledge and skills through this new training model, fostering their sense of public spirit, awareness of the rule of law, global vision, and political identity during students' active learning. Students bring these concepts and skills back to their work, using professional public administration knowledge to solve practical problems, and through continuous practical exploration, not only enhance their work ability, but also meet the needs of professional development. This enables them to solve public social problems from a more experienced perspective, realize public interest, and achieve public benefit.

VI. Concluding Remarks

Xia Shuzhang, the father of MPA education in China, emphasized that MPA education in China must be closely aligned with the primary national conditions of our country (Xia Shuzhang). The thought of socialism with Chinese characteristics in the new era, led by President Xi Jinping, has dramatically influenced the development of China's administrative management system and provides a strong foundation for the development of MPA education. It is crucial to cultivate public administration professionals who have a deep understanding of China's governance and possess strong management skills and practical abilities.

MPA education, as a professional master's program designed to train managers in public institutions and government, is a relatively young discipline within the field of general management and a crucial component of postgraduate education. Over the past two decades, MPA education in China has made significant progress, producing some talented public management professionals. However, the development of MPA education in China must continue to evolve, adapting to the changing social and educational environment and focusing on the "nonstructural" teaching concept and "dual cycle" training model to achieve sustainable and connotation-based professional degree education. The ultimate goal is to provide high-quality, application-oriented talents who can contribute to the progress of China.

References Références Referencias

1. Zhang Runjun, Dong Rui. Analysis of Public Administration Master's Education Oriented to Problem [J]. Contemporary Education and Culture, 2016, 8(3):4.
2. Zhou Yicheng, Qiu Dongliang. From Exportation Teaching to Construction Teaching: Reflection and Reconstruction of MPA Professional Degree Graduate Teaching in China [J]. Jiang-Huai Forum, 2016(5):3.
3. Xie Jing, Peng Zongchao. Exploration of Tsinghua MPA Education Model Based on Thematic Research and Practical Innovation [J]. Degree and Graduate Education, 2016(8):5.
4. Xie Jiahong, Zhu Jun, Shen Wenqin. Has the Ability of Professional Degree Graduate Improved? - Analysis of Public Administration Master's Ability Enhancement and Its Influential Factors [J]. Degree and Graduate Education, 2021(6):9.
5. Xue Lan, Zhao Chunjun, Zhao Jinsong. Developing Public Administration Master's Education to Meet the Needs of Reform and Opening-Up [J]. Degree and Graduate Education, 1999(3):3.
6. Xia Shuzhang. China's MPA Education Cannot Depart from the Basic National Conditions of China - Interview with Xia Shuzhang [J]. China Graduate Student, 2018(11):2.
7. Tang Delong, He Xin. A Good MPA Thesis: Who Writes and How to Write? - Content Analysis of 104 National Public Administration Master (MPA) Excellent Thesis [J]. Degree and Graduate Education, 2021.
8. Ma Baobin, Ma Xiaojie. Study on "Double Cycle" Cultivation Mode of Public Administration Master's Graduates [J]. Journal of Changchun Education Institute, 2011(7):4.
9. Li Fei, Li Cong. Study on the Education Quality Evaluation System of Public Administration Professional Degree Graduate "Double Cycle" Cultivation Mode [J]. New West: Theory, 2018(1):3.
10. Liu Yu, Huang Junying, Zhang Chaohui, et al. Empirical Study on MPA Professional Degree Graduate Education Satisfaction - Based on the Survey of Five Universities in Sichuan [J]. China Youth Research, 2017(2):6.
11. Huang Jianwei, Liu Wenke, Xiong Peixuan. Review and Prospect of China's MPA Education Research in the Past 20 Years - Based on Keyword Analysis of Literature [J].
12. Han Xixiang, Shi Danxi. The achievements and prospects of MPA education in China in 20 years [J]. Leadership Science Forum, 2020 (11):11.
13. Chen Zhenming. Looking at China's MPA education and its course setting from the experience of foreign countries [J]. Degree and Graduate Education, 1999 (3):5.
14. Wessels J S. Challenges to inform the curricula of Master of Public Administration programmes [J].

© 2023 Global Journals

Teaching Public Administration, 2019, 38(2): 014473941986413.
15. Stephen, Capobianco, See, et al. Enhancing global and intercultural competencies in Master of Public Administration classes: Assessing alternative approaches to incorporating cultures and languages [J]. Teaching Public Administration, 2018, 36(2):178-200.
16. Shevchenko, Alina. The Essence and Structure of Masters' of Public Administration Core Competencies in the USA [J]. Comparative Professional Pedagogy, 2016, 6(3):62-68.
17. Nollenberger K. On-Campus versus Hybrid Courses in a Master of Public Administration Program [J]. Journal of Public Affairs Education, 2017.
18. Matei A I, Matei L. Internationalization of Master Programmes in Public Administration: An EU-US Comparative Study [J]. Procedia - Social and Behavioral Sciences, 2012, 83(3):734-738.
19. Morl G, Tantardini M, Williams A , et al. Master of Public Administration and Master of Public Policy degrees: Differences and similarities in the curricula and course contents [J]. Teaching Public Administration, 2020, 38(4): 014473942091575.
20. Carroll P. WHATEVER HAPPENED TO THE MASTER OF PUBLIC ADMINSTRATION (MPA)? [J]. Australian Journal of Public Administration, 2010, 50(2): 199-202.
21. Bremer J, Baradei L E. Developing Public Administration and Public Policy Master's Programs in Egypt [J]. Journal of Public Affairs Education, 2008, 14(3):439-462.

© 2023 Global Journals

This page is intentionally left blank

© 2023 Global Journals

Global Journal of human-social science: G
Linguistics & Education
Volume 23 Issue 2 Version 1.0 Year 2023
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-460X & Print ISSN: 0975-587X

Views of Students of ASPETE Athens on the Connection between Theory and Practice in the Context of their Microteaching

By Klada Nektaria & Kafka Dimitra

Summery- The present article aims to highlight how the pedagogical courses - specifically those of Teaching Methodology and Educational Evaluation - taught to students of ASPETE Athens in previous semesters, helped them to plan, organize and implement the microteaching courses they are asked to implement in later semesters. The research was conducted through semi-structured interviews with 12 students from different departments of the faculty under the interpretive paradigm and data analysis was done through the coding process. The article, after giving a brief review on the teaching methodology and the application of the practice of microteaching internationally, presents the results of the research. According to these, most students highlighted the importance of the theoretical training they received from the above-mentioned courses, as well as from other pedagogical courses taught in previous semesters. However, at the same time they stressed that the practice was quite different and gave rise to much more reflection on the teaching profession."

Keywords: *microteaching, teaching methodology, educational evaluation, theory-practice.*

GJHSS-G Classification: *DDC Code: 822.33 LCC Code: PR2802.A2*

VIEWSOFSTUDENTSOFASPETEATHENSONTHECONNECTIONBETWEENTHEORYANDPRACTICEINTHECONTEXTOFTHEIRMICROTEACHING

Strictly as per the compliance and regulations of:

© 2023. Klada Nektaria & Kafka Dimitra. This research/review article is distributed under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0). You must give appropriate credit to authors and reference this article if parts of the article are reproduced in any manner. Applicable licensing terms are at https://creativecommons.org/licenses/by-nc-nd/4.0/.

Views of Students of ASPETE Athens on the Connection between Theory and Practice in the Context of their Microteaching

Klada Nektaria [α] & Kafka Dimitra [σ]

Summary- The present article aims to highlight how the pedagogical courses - specifically those of Teaching Methodology and Educational Evaluation - taught to students of ASPETE Athens in previous semesters, helped them to plan, organize and implement the microteaching courses they are asked to implement in later semesters. The research was conducted through semi-structured interviews with 12 students from different departments of the faculty under the interpretive paradigm and data analysis was done through the coding process. The article, after giving a brief review on the teaching methodology and the application of the practice of microteaching internationally, presents the results of the research. According to these, most students highlighted the importance of the theoretical training they received from the above-mentioned courses, as well as from other pedagogical courses taught in previous semesters. However, at the same time they stressed that the practice was quite different and gave rise to much more reflection on the teaching profession.

Keywords: microteaching, teaching methodology, educational evaluation, theory-practice.

I. Introduction

We live in a reality in which major and rapid changes are taking place that affect all sectors, as well as the school institution. This realization leads to continuous efforts to renew the educational system and consequently the study of the initial training of prospective teachers, as well as the continuous training of those in office (Chatzopoulou, 2014). Thus, teacher education is one of the topical and controversial educational issues, in the international community. If we take into account the recent emphasis on the processes of reflection and metacognition, we are led to the conclusion that practices of teacher education that enhance the above are still at the center of educational interest.

One such practice is the microteaching technique which is applied in many departments in Greece and other countries that prepare their students as future teachers, (Fernadez, 2010; Msimanga, 2020; Danday, 2021; Sophos, et al., 2013; Karaminas, 2010).

However, while the microteaching method has been well studied mainly in terms of its effects on the trainee or practicing teacher, the way of linking the theoretical courses that students attend, and the application of this knowledge during their microteaching is absent from the literature. This practice of microteaching enables students to put into practice what they have learned earlier in theory. Thus, this article aims to identify the views of students of ASPETE Athens, how much the pedagogical courses they attended in previous semesters helped them in the planning, organization and implementation of their microteaching courses that they are required to implement in subsequent semesters.

The two theoretical courses, Teaching Methodology and Educational Evaluation are the reference courses for the implementation of the Practical Teaching Exercises by the students. The highlighting of appropriate teaching and evaluation tools that can be applied in the context of the Teaching Practice is the focus of the two courses, so that students are trained in issues related to the teaching and evaluation process.

a) *The theoretical framework: the scientific training of students in issues of Teaching Methodology and Educational Evaluation*

The training of the students of the Department of Education of ASPETE in teaching methodology is a necessary condition for them to fulfil their role as teachers. The aim of the course is to understand the phenomenon of teaching in its complexity and diversity with an awareness of its importance for education, in order to build the theoretical foundations and to cultivate the ability and readiness for the planning, organization, implementation and evaluation of the teaching practice. In particular, the aim is to gradually familiarise the teacher with teaching methods, both traditional and modern (student-centred), but also to develop the freedom and creativity of the teacher towards original, attractive and effective teaching and towards the development of a personal theory of teaching. This direction follows the direction of contemporary teaching methodology, which, adopting the principles of postmodern pedagogy, is oriented towards the construction of a dynamic system of knowledge production and use, through educational environments of communication and feedback between teachers and learners (Φρυδάκη, 2009, pp. 237-238). The aim is to maximize the teaching work, through practices that facilitate access to knowledge, the creation of a

Author α: Lecturer at Pedagogical Department, of ASPETE of Athens.
e-mail: neklada@gmail.com
Author σ: Pedagogical Department, Laboratory Teaching Staff, School of Pedagogical and Technological Education of Athens (ASPETE).
e-mail: dimitrakauka@gmail.com

© 2023 Global Journals

dynamic learning environment, capable of providing learning experiences and the development of a learning process, and the creation of a learning environment that is able to offer a learning experience for the students. In the context of this reasoning, the Teaching Practice, should aim to build knowledge, to move from the "shallow", standardized learning process to processes focused on agency and participation. It should shape productive teaching environments by drawing on learners' experiences and experiences, adopting collaborative and exploratory practices, as well as opportunities to practice and apply learning. Shape collaborative learning environments that encourage learners to question, explain and elaborate their thinking to "co-construct" solutions, as well as extended learning opportunities that foster positive relationships and support enriching learning. Organize ongoing formative assessments and opportunities to receive timely and useful feedback, teacher and student feedback, and opportunities to develop metacognitive skills through planning and managing complex tasks, self-evaluation and peer assessment and reflection on learning (Καυκά, 2022). It therefore follows that, in order to build, meaningful learning, the perspective of instruction should focus on making connections between new and prior knowledge, creating experiences, and organizing information in order to develop strategies for intentional learning and problem solving (Bransford, Brown, Cocking, and National Research Council [NRC], 2000). On this basis, students acquire specialized knowledge, design instruction and organize "open" learning environments so that the educational process meets the needs of contemporary reality. At the same time, their theoretical training on what educational evaluation is, what purpose it is called upon to perform and how to use the evaluative tools in teaching practice, is a requirement in order for evaluation to become a learning tool. Therefore, the way they are trained in the context of the course offered becomes an important and capable condition for ensuring effectiveness in the whole range of the teaching process in the school.

Based on the literature, the term Educational Assessment is distinguished for its broad and multidimensional scope of reference. The use of a variety of definitions, which have been recorded in both international and Greek literature from 1933 to the present day, demonstrates the complexity of the scientific field and the need for conceptual clarification (Black & William, 1998; Grammatikopoulos, 2006; Creemers & Kyriakides, 2008; Δημητρόπουλος, 1999; Κασσωτάκης, 1990, 2013; Masters, 2013; Newton, 2007; Provus, 2007; Provus, 1971; Stake, 1975; Stiggins, 2004; Stufflebeam, 1971; Tyler, 1942), often complementary and interdependent. The point of convergence of all the above-mentioned efforts is that they identify educational evaluation as a systematic process aimed at assessing and improving the effectiveness of all areas of education and refer to the evaluation of learners, teachers, the teaching process, curricula, educational programmes, the educational system as a whole are only some manifestations of educational evaluation. However, in contemporary pedagogical science, educational evaluation is directly intertwined with the evaluation of learners in everyday educational practice and is defined as the systematic and well-organised process of data collection and analysis aimed at assessing learners' knowledge and skills, always in relation to the intended teaching objectives set. In this light, assessment plays a catalytic role, as it runs through the whole teaching process, functioning as: a) a dynamic tool for learning (assessment for learning), actively involving learners in the evaluation of their efforts and b) as a feedback and improvement mechanism both for learners (continuous monitoring of their learning progress, detection of their weaknesses and deficiencies through the development of strong metacognitive skills) and for the teacher himself (e.g. e.g. redefining teaching objectives, redesigning appropriate teaching interventions to improve the teaching process) (Δημητρόπουλος, 1999; Κασσωτάκης, 2013). In this sense, the education of undergraduate students on the issues of educational evaluation is an important factor for their future response to the demands of the environment.

b) Research on the practice of micro-teaching

Teacher education is one of the topical and controversial educational issues, in the international community. If we take into account the recent emphasis on the processes of reflection and metacognition, we are led to the conclusion that teacher education practices that enhance the above are still at the center of educational interest (Παπαοικονόμου, 2014).

One such practice is the microteaching technique which is applied in many departments in Greece and other countries that prepare their students as future teachers, (Fernadez, 2005; Msimanga, 2020; Danday, 2021; Σοφός, et al., 2013; Καράμηνας, 2010).

Allen and Ryan define microteaching as an instructional practice that provides a teaching environment that familiarizes teacher trainees with situations found in a regular classroom, (Allen, & Ryan, 1969). More specifically, microteaching is a 5 to 30 minute laboratory exercise, depending on the model followed at the time, in which the teacher candidate teaches a limited teaching unit to a small audience of fellow teacher trainees in order to familiarize them with specific teaching skills and to acquire pedagogical approaches. A key element of the micro-teaching is its video recording, so that, in addition to the trainees, the teacher is able to observe him/herself on video as a teacher, immediately after the teaching has been carried out or later, and to reflect on it. After the viewing,

© 2023 Global Journals

comments and judgments from the trainees and the supervising pedagogue follow (Χατζηδήμου, 1997; Κουγιουρούκη, 2003; Γιαννακοπούλου, 2008). Through this practice of micro-teaching, the trainees have the opportunity and under the supervision of a supervisor, to utilize certain skills and receive feedback on their teaching and pedagogical behavior (Darwish, Sadeqi, 2016).

However, although, as a teacher education practice it has been encountered for several years, there are many contemporary researches dealing with this issue. Some of them will be presented below to highlight the parameters of the topic that have been studied and those that complement the present research.

One study that combined qualitative as well as quantitative data to investigate the effectiveness of microteaching on the teaching skills of prospective teachers is that conducted by Selda Bakir (2014) who found the effectiveness of microteaching to a significant extent on skills related to lesson planning, classroom management and time management. Moreover, the contribution of micro-teaching in increasing the confidence of prospective teachers, gaining teaching experience and more effective transmission of the lesson was emphasized. Finally, students argued that because of the help they received from the microteaching exercises, it should be included in other years of study, not only in the last year of study, (Bakir, 2014).

Another experimental study is described in the article by Zahid, Khanam, (2019). It was found that teachers' participation in microteaching had improved the skills and performance of teachers who reviewed and modified their teaching strategies through reflective practice. Finally, the findings led to the revision of educational interventions and strategies and the methods of microteaching were further improved (Zahid, Khanam, 2019).

Interestingly, research was also conducted at the University of Flores, Indonesia, where students implemented distance microteaching during the pandemic period due to Covid-19. In this case too, although they did not meet physically in a classroom but through an online platform, it was evident from the results that they also benefited from the process. They learned to actively use their skills, produce learning plans and implement a lesson, all while adapting to particular circumstances. The students in this particular department felt that they benefited significantly from the process by applying in a virtual classroom what they learn theoretically in their classroom with face-to-face observation (Nasar, Kaleka, 2020).

In conclusion, from the above literature review it can be concluded that Micro-teaching practice is a key element of education that provides an opportunity for teaching practice for those who are destined to become teachers and its place in education is essential. However, despite the many published international researches on microteaching, what is mainly examined is the effectiveness of microteaching in enhancing some teaching skills of teacher candidates, its contribution to communication and reflection. At the same time, there is a lack of literature and research on the correlation between the practice of Microdidactics and the theoretical courses taken by students as teacher candidates and the relationship between theory and practice. This is the dimension that this research aims to address.

II. Research Methodology

a) Objective and Research Questions

The aim of the present study was to investigate the opinions of the 7th semester students of the Mechanical Engineering Department and the 9th semester students of the Civil Engineering Department of ASPETE Athens, on whether the pedagogical courses, and especially those of Teaching Methodology and Educational Evaluation taught in previous semesters, helped them in the design, organization and implementation of their Microteaching courses that they were asked to implement in the respective semesters that the research was conducted.

From the above objective, the following research questions arise:

1) How much did the theoretical training received by the students, mainly in the courses of Teaching Methodology and Educational Evaluation, but also in other pedagogical courses, help them in the organization and implementation of their microteaching?
2) What do the students themselves suggest regarding the organization of the above theoretical courses, so that they are guided to the successful organization and implementation of the practical teaching exercises they are required to implement (PAD)?

b) Method

The topic under investigation was approached through qualitative research, which was approached in the light of the interpretive epistemological paradigm, since we were concerned with understanding the students' views. Thus, since in the interpretivist paradigm the question is not what is happening in the field of education from the observer's point of view, but what the learner or teacher believes is happening in the immediate educational environment and how they interpret it (Scotland, 2012), this epistemological paradigm. At the same time, the choice of qualitative research enabled us to deepen the analysis of students' perceptions and opinions. This is why qualitative research is a typical approach to educational research (Robson, 2010), as it is flexible and allows topics to be shaped, changed and further defined during the course of the research, contributing towards a holistic

© 2023 Global Journals

understanding of the topic to be investigated (Creswell, 2016).

Specifically, the research tool used was a semi-structured interview, lasting 25-30 minutes on average, of approximately 12 (there may have been some clarifications on a case-by-case basis) open-ended questions, predetermined for all sample members, following all the procedures for conducting this research (obtaining consent, communicating the research protocol to the participants). This particular instrument was chosen due to the fact that the open-ended questions of semi-structured interviews are flexible and facilitate the collaboration between the researcher and the respondent (Robson, 2010). Finally, the interviews lasted from October 2022 to December of the same year and were conducted in the Faculty premises after the implementation of the micro-teaching sessions by each group of students.

c) Sample

In the present study, the reference point is 12 students (7 female and 5 male), who were studying in the 7th semester of the Department of Mechanical Engineering or respectively in the 9th semester of the Department of Civil Engineering of ASPETE Athens. The students in the sample can be characterized as a "feasibility sample", because these students have attended the theoretical courses whose contribution is examined in the research, their participation was highly voluntary and they showed particular interest in participating in it. So the main criterion for selecting the participants was their attendance of the pedagogical theory courses in previous semesters. Also, as stated by Ίσαρη & Πούρκος (2015), qualitative research does not follow fixed rules and numerical limitations with regard to the sample size. Therefore, the number of 12 participants that constituted our sample was considered satisfactory, since the aim of the research was to elicit subjective and personal opinions and or in-depth understanding of them (Μαντζούκας, 2007).

III. Validity and Reliability

In order to ensure the validity of the research and to avoid the possibility of misunderstanding the questions during the interview process, a pilot interview was conducted with two groups of students who would not participate in the research, and once the readability and clarity of the questions were ensured, the individual interviews were then conducted.

In order to ensure reliability, transcribed interviews were given to some of the participants - specifically five of our sample - to confirm their responses. In other words, the process that Creswell (2016) defines as "member checking" was applied and considers it necessary to validate the accuracy of the data.

IV. Data Analysis

In this study, the thematic analysis followed the stages of analysis according to Τσίωλη (2014), so that the researcher links the next step to the previous ones through a circular feedback process with accurate recording and attribution of the themes in the context of the research questions. In the first stage, the researcher proceeded to transcribe the interviews with an emphasis on accurately recording what was said without deleting any interruptions, errors or repetitions (Τσίωλης, 2014). Next, the analysis stage which involves the generation of initial codes by examining the texts in order Each code briefly expresses the meaning the researcher gives to the particular section of data. Some codes can be combined (codes with similar features or meanings) and unified at a higher level (before the framing of issues) forming categories or higher level codes (Τσιώλης, 2014). In short, the process of coding according to Glaser and Strauss' Grounded Theory was followed (in Τσιώλης, 2014) without the researchers aiming to derive a new theory, but to confirm pre-existing findings or to formulate new ones.

V. Survey Results

The results of the coding of the interviews indicated that the pedagogical courses generally helped the students to implement their microteaching. In particular, they helped them to concretize their thinking and use the respective concepts of Teaching Methodology and Educational Evaluation (lesson concepts, objectives, methods, teaching techniques, teaching tools, etc.). It was also said that it was facilitated by the concept maps taught in the Teaching Methodology course, because they gave students an idea of how to organize their recapitulation and how to reformulate the main concepts of their teaching. As the student (4) puts it:

> "*These lessons helped me in terms of bringing out my thinking and vocabulary.... In the PADs (Practical Exercises of Didatics) that we do now and later on in school, we have to have some concepts in our minds, such as methods, means, techniques...we were able to separate these in our minds. We didn't know these things, and we were taught them in specific courses. That's what it helped me with: being able to separate them and being able to use them at any time, either now or in the future if I get involved (in education), to make the course more interesting and less ineffective*..."

In addition, it was felt that the examples presented to the students during the Teaching Methodology lesson, the explanation of the different phases in each teaching method and the guidance in completing the form describing the lesson plan they carry out in each of their micro-teaching sessions were particularly useful for them to carry out these. According to Student (1):

© 2023 Global Journals

"*The truth is that both courses (Teaching Methodology and Educational Evaluation) were quite helpful, because the teachers were showing us during the course how to use each teaching method and so on, so now that it was time for me to use it, it seemed easier than if I had no contact with it...and I would have had to pull it out of nowhere.*"

Similarly, Student (5) stresses:

"*Definitely the Teaching Methodology course helped me the most of all and the reason is that we had seen the phases for each different way of teaching separately...*".

And Student (2) adds: "*Yes, the pedagogical courses helped me quite a lot, but I mostly apply something simple to my own teaching....*".

Subsequently, the students who had attended the pedagogical courses, namely those of Teaching Methodology and Educational Evaluation, felt more comfortable to put into practice the different teaching methods they were asked to apply in their microteaching, such as concept elaboration, group collaboration and inquiry. Although most of them emphasise that they have not fully assimilated each method and when they apply them they understand them better, they admit that they have received a satisfactory insight into these methods from the delivery of their respective courses:

Student (1): "*I think I have a good understanding of them and that I can apply them in the classroom.*"

Student (2): "*I think yes, maybe not all of them. Working out concepts is easier, exploratory is difficult, as well as group work, because I can't think how I can put the children in groups, because some may not have the same knowledge as others, they may be weaker than others...*"

Student (3): "*It helped me, because we had the slides explaining them...but there I was a bit confused about what each one was.....but okay...the lesson helped me in general...*"

Student (4): "*Yes, ...it is very different to have a definition in your head, such as working out concepts, and very different to have to organize a whole lesson on that, even if it is 15 minutes long... That is, I who will next time present the group collaborative ... was very much helped to sort out what I have to do ... first having been in the position of the student, which I have been for so many years and continue to be, and then also getting into the position of the teacher, the professor ...*".

However, there were also opinions that found the process difficult because they had no experience of anything like this and the only thing they had as a model was the lessons of some of their teachers. As Student (8) states:

"*It is definitely a difficult process because I have not experienced anything similar. We have many teachers as a model that we can follow some scenario. We definitely have the basics from some courses we have been taught. We know the steps we need to follow but from there it's up to us.....*"

While, for the Teaching Methodology course, this student felt that it had some "gaps", in contrast to the Educational Evaluation course which he felt was more clear, with specific objectives.

"*I did have some gaps indeed. I asked some teachers again to pass it on to my teaching. Maybe some things were kind of rushed through in the lessons [that we did] and not as well understood. Some concept, methods nine relatively close ... are some details that need to be understood ...*"

"*There [in the Educational Assessment] things were clearer because it has to do with the last part of the process... things were more clear*".

There was also a feeling from some participants that they only gained a general idea from the theoretical courses, which they felt not quite sure how to put into practice, and it was said by several that the past time between the theoretical courses taught and the Microlearning sessions also made it difficult for them:

"*To a certain extent I can say that I have understood some things. But it's generally what I remember. it's been a long time.... Also the classes were in quarantine so we were not able to ask questions... to talk to the professor/teacher in the context of the way the class was conducted...*" *(Student 9)*

Continuing with the students' views on the relationship between theory and practice, it was found that theory generally helps to apply what was taught, but there is also some distance between the two. Most students claimed that the theory they learn is far from the application of the theory they learn. In Practice, they are asked to take into account various factors, the needs of the children, unpredictable situations that will arise and they have to manage them. Generally, while they felt they had some elements of theory in mind, they felt insecure when they had to apply it to their teaching eventually.

"*...it's a lot of work behind the scenes until you get into the classroom...but I hadn't experienced it, to actually understand how difficult it is, and when I actually did....or was....it was actually very demanding, very demanding.*" *(Student 1).*

"*....it's completely different...because when you say it theoretically...you say okay...one, two, three,...but when you come into a room...it's that there are different opinions...the fear of how you're going to say it...you're thinking about resonance...and you're thinking about other things and you're trying at the same time not to forget the pattern that you want to follow...and Yes! ...it's different...(Student 3).*

"*It's too far away! Because in theory we have a certain student pattern in mind. Whereas in practice, we talk about different students who may not be able to fit into it...*"*(Student 6).*

When asked what helped the students to organize and prepare more effectively for the Practical Teaching Exercises (PADs) in terms of the two courses, the respondents said that they were particularly helped by the information given to them before the Microlearning sessions, but also by the teaching, the notes taken by the students individually, the discussions

© 2023 Global Journals

during the lesson, which fostered teamwork and collaboration, and the material posted by the teacher.

As the students argue:

"Definitely the notes because I had taken them as I wanted and I could understand them afterwards on my own...so definitely the notes I had taken from that lesson and how well the professor explained it..." (Student 5).

Or according to Student (7):

"I would say first of all the professor because the more e.g. he gives you the material and applies it already, the more he helps you to digest it better,... This, but also with notes and the forms that were given to us at the beginning of the PADs that is and there I keep referring especially to the form for the steps of each teaching....".

However, it was emphasized by all respondents that the course books were not used or utilized by the students and barely thumbed through by some. They all relied on the teacher's notes or their own notes as well as the material provided by the lecturer which was on slides. As the students argue:

"More from slides, from my own notes...so I was writing down all the things that were explained to us...and now I still write down more what the teacher says...it helps more in assessment because books are harder to understand." (Student 2)

"The discussions and examples within the lesson and the material he had put up...not the book..." (Student 3).

When asked if they felt that something was missing from these particular lessons and what it was, almost all respondents said that they would have liked to have seen more "Practice" before implementing their microteaching. In particular, others suggested that groups of students make small presentations of lessons or lesson plans within the courses to get an idea of the process and to implement the teaching methods they were taught to at least some extent. Others suggested seeing examples of micro-teaching by other students or lecturers, while some suggested having small seminars to present the methods. Of course it was said again that these courses should be held in semesters closer to their microteaching. Let us look at some of these views:

"As I told you before...I would like these courses to be as close as possible to the PADs..."(Student 3)".

"I think that in the theoretical courses there could be something like small sketches (she means something like simulated microteaching). Now we faced something new (in PAD). If we had done it even for five minutes in class, with improvisation completely, it would have helped us more....we would have been less stressed, because we would have had a picture in our minds the first time of what we had to do..."(Student 4).

"Yes...if we could see it...I mean, if we could see the PADs of other kids who would practice on it, so that we could see it for next year." (Student 6).

"For me what would be ideal would be at the beginning of the semester to have a small seminar showing a little bit of the methods from the teachers themselves or from other children... ..."(Student 7).

"It could be more interactive and with more practical applications. Because we are tertiary, what was done now in the Micro-teaching could have been done earlier, in the first courses, so that we could make it more our own, get closer to it." (Student 8).

Clearly then, this highlights the need for students to have more practice, examples and interaction in order to more effectively consolidate the theory they are learning.

Finally, as to whether the teaching practice is demanding for the teacher, the students felt that it is indeed a very demanding process, which requires good preparation, transferability, comfort with students, good subject knowledge and fluency in the use of new technologies. At the same time, they argued that the teacher should make the course engaging and inspire the students. The combination of all the above skills the students admitted that it was very challenging.

Let us look at some of the students' views:

"He has, yes because he has to keep the time and the children have to understand, he has to keep some handouts and he has to know his subject,..." (Student 2).

"...it's definitely, it's not simple...because there has to be liveliness in the classroom...you have to do different things so that you spark interest and there's always excitement about what they're going to learn in the future...." (Student 5).

"It is a demanding process to teach. You have to master the course first of all, be able to have fluency in the classroom, constant interaction with the children so they don't lose interest, lots of material and up-to-date material: videos, power points...and definitely not just standing on one source...I think the textbook is very outdated now...so lots of preparation!" (Student 7).

But apart from the aforementioned, it is worth noting in closing with the results that several students also found courses such as Psychology or Educational Technology useful, which indirectly but in a meaningful way made them interpret more correctly adolescent behaviours, ways of thinking, what to observe in their students' behaviour. Similarly, Educational Technology showed them ways of integrating New Technologies in education, ways of interactive lessons, and in this course they were also taught lesson plans which were useful for the organization and implementation of their Microteaching.

VI. Conclusions - Discussion

The above analysis shows that to a fairly sufficient level feel that they have benefited from attending theoretical courses related to the practice of the Microteaching that they are implementing. This finding also coincides with research by Aslihan, Naci (2013), according to which the microteaching method gives teacher candidates the opportunity to evaluate what they gained from teaching the theory they were taught and how much they were able to put into practice what they learned theoretically (Aslihan, Naci 2013). This

© 2023 Global Journals

view was evident in the present study in which participants claimed that the theory helped them to apply some elements in practice and that they would have found it more difficult if they had not been aware of them.

However, almost all participants stressed that while they were helped to some extent by the theory, in practice they felt quite different and reflected on teaching and pedagogical issues that they had not imagined while theoretically teaching the Teaching Methodology and Educational Evaluation courses. So, when implementing their microteaching, it seems that they focused more on practical issues and less on the theory they had been taught. This finding is also confirmed in the research of (Crichton, et, all, 2021), where also few students made connections with learning theories when they applied their microteachings, and those participants also claimed that they were greatly helped by the practical experience they gained from teaching their colleagues, which was also confirmed in our research. We also found that when our students put a micro-teaching module into practice, apart from difficulties they faced, they became more aware of what they had been taught and felt more prepared to teach. Something similar was also found in the research of (Crichton, et, all, 2021) in which it was noted that there too the participants gained more confidence and better understood the pedagogical approaches they had been taught in the theory courses (Crichton, et, all, 2021).

In addition, we think it is important to highlight the request of many of the students interviewed that they would have liked to have been 'exposed' to more practical teaching exercises and teaching models from professors or older students, in order to link theory and practice more effectively, and interestingly, the suggestion that these theory courses should be taught in semesters that are close to the micro-teaching requirement, so that there is not a long time gap between theory and practice.

Finally, it is also interesting to note that the teaching practice is a highly demanding process that requires a number of skills to be effective. This makes the teaching profession particularly demanding and difficult, which the students found out when they taught themselves in the context of micro-teaching. A similar finding was also made in the research of (Karlström, & Hamza, 2019), according to which, through reflection after implementing their microteaching in science subjects, the participants realized the importance as well as the difficulty of the teaching task (Karlström, & Hamza, 2019).

VII. Research Limitations and Suggestions for Further Research

This research is important for teacher education, where it is recognised that there is some difference between the theoretical and practical aspects of teaching. It provides a basis for further research that will explore in greater depth students' perceptions of different elements of a microteaching project. However, there are some limitations that could be addressed in subsequent research. First, we acknowledge that the study involved students who were taught the specific theoretical courses in Educational Evaluation and Teaching Methodology online due to the recent pandemic. This parameter could affect the results of this study and if these courses had been taught face-to-face, other connections between theory and practice could have been made.

Also, due to the choice of semi-structured interview as the main methodological tool, a limited number of students were interviewed so we cannot confidently claim the generalizability of the results. It would be possible here to supplement this research with quantitative data from a much larger sample of students.

Finally, the fact that there was, according to the curriculum of the faculty, a significant time gap between the teaching of these courses with which the research was basically concerned, and the implementation of the Microteaching, is something that also, could influence the results of the present research and would be useful as a topic to be taken into account by the curricula of all university departments of Education.

In conclusion, we find that the application of theory in the design, organization and implementation of student-teachers' microteaching raises questions about the purpose of teaching theory at the university. Does the teaching of theory need to be aimed at developing students' ability to put into practice what is taught and making the specific lessons more experiential?

This research has attempted to raise the concern. Subsequent research efforts could be extended to the relationship between other pedagogical courses and teaching practices implemented by prospective teachers in the classroom, as well as to investigate the contribution of pedagogical theory courses to the practical teaching practice implemented by prospective teachers in a real classroom.

Acknowledgement

The authors *Klada Nektaria and Kafka Dimitra* acknowledge financial support for the dissemination of this work from the Special Account for Research of ASPETE through the funding program "Strengthening ASPETE's research".

References Références Referencias

1. Aslihan, S., Naci, A.C. (2018). Pre-Service Teachers' Opinions about the Micro-Teaching Method in Teaching Practise Classes. *TOJET, V12 (2),* 234-

© 2023 Global Journals

240. Retrieved 20/1/2023 from https://eric.ed.gov/?id=EJ1015454.
2. Bakir, S. (2014). The Effect of Microteaching on the Teaching Skills of Pre-service Science Teachers. *Journal of Baltic Science Education, Vol. 13, (6),* p.789-801. Retrieved 20/10/2021 from https://www.proquest.com/openview/d6156d1e3133bee584c4419d117f85b2/1?pq-origsite=gscholar&cbl=4477238
3. Black, P. & amp; William, D. (1998). Assessment and Classroom Learning. *Assessment in Education: Principles, Policy & amp; Practice, 5(1), 7-74.* Retrieved 28/1/2023 from https://www.gla.ac.uk/t4/learningandteaching/files/PGCTHE/BlackandWiliam1998.pdf.
4. Bransford, J., and Stein, B., (1984). *The ideal problem solver: A guide for improving thinking, learning and creativity.* New York: W.H. Freeman. http://math.abom.com/cs/terprep/a/ps.htm (accessed 2007).
5. Γραμματικόπουλος, Β. (2006). Εκπαιδευτική Αξιολόγηση: Μοντέλα Αξιολόγησης Εκπαιδευτικών Προγραμμάτων. *Αναζητήσεις στη Φυσική Αγωγή και τον Αθλητισμό, 4(2),* 237-246.
6. Creemers, B.P.M. & amp; Kyriakides, L. (2008). *The dynamics of educational effectiveness: a contribution to policy, practice and theory in contemporary schools.* London: Routledge.
7. Creswell, J.W., (2011). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research, Η Έρευνα στην Εκπαίδευση: Σχεδιασμός, Διεξαγωγή και Αξιολόγηση της Ποσοτικής και Ποιοτικής Έρευνας.* Αθήνα: Εκδόσεις ΙΩΝ.
8. Crichton, H., Gil, V. & Hadfield, C. (2021). Reflections on peer micro-teaching: raising questions about theory informed practice. *Reflective Practice, V 22(3)*, 345-362. Retrieved 28/1/2023 from 10.1080/14623943.2021.1892621.
9. Danday, B. (2021). Advancing Preservice Physics Teachers' Critical Thinking through Active and Passive Microteaching Lesson Study. *International Journal of Learning, Teaching and Educational Research., V 20(3),* 205-228. Retrieved 20/12/2022 from https://doi.org/10.26803/ijlter.20.3.13.
10. Δημητρόπουλος, Ε. (1999). *Εκπαιδευτική Αξιολόγηση. Η Αξιολόγηση της Εκπαίδευσης και του Εκπαιδευτικού Έργου.* Αθήνα: Γρηγόρης.
11. Fernandez, M. L. (2005). Investigating how and what prospective teachers learn through microteaching lesson study. *Teaching and Teacher Education V 26,* 351–362. Retrieved 20/10/2021 from www.elsevier.com/locate/tate.
12. Ίσαρη, Φ., Πουρκός, Μ. (2015). *Ποιοτική Μεθοδολογία Έρευνας. Εφαρμογές στην Ψυχολογία και στην Εκπαίδευση.* Αθήνα: Καλλίπος.
13. Καράμηνας, Ι. (2010). Ο Αναστοχασμός ως Μεταγνωστική διαδικασία κατά την Πρακτική Άσκηση των εκπαιδευτικών με Μικροδιδασκαλία: Η περίπτωση των σπουδαστών του ΕΠΠΑΙΚ στην ΑΣΠΑΙΤΕ. *5ο Πανελλήνιο Συνέδριο με θέμα Μαθαίνω πώς να Μαθαίνω 7-9 Μαΐου 2010*. Αθήνα: ΕΛΛ.Ι.Ε.Π.ΕΚ.
14. Karlström, M., & Hamza, K. (2019). Preservice science teachers' opportunities for learning through reflection when planning a microteaching unit. *Journal of Science Teacher Education, 30(1),* 44-62. Retrieved 28/1/2023 from https://doi.org/10.1080/1046560X.2018.1531345.
15. Κασσωτάκης, Μ. (1990). *Η Αξιολόγηση της Επιδόσεως των Μαθητών: Μέσα-Μέθοδοι- Προβλήματα Προοπτικές.* Αθήνα: Γρηγόρης.
16. Κασσωτάκης, Μ. (2013*). Η Αξιολόγηση της Επίδοσης των Μαθητών: Θεωρητικές Προσεγγίσεις και Πρακτικές Εφαρμογές*. Αθήνα: Γρηγόρης.
17. Καυκά, Δ. (2022). *Διδακτικές Μέθοδοι και τεχνικές*. Αθήνα: Ινστιτούτο Εκπαιδευτικής Πολιτικής.
18. Masters, G.N. (2013) *Reforming Educational Assessment: Imperatives, Principles and Challenges.* Camberwell, Victoria: Australian Council for Educational Research. Retrieved 13/11/2014 from http://research.acer.edu.au/aer/12.
19. Μαντζούκας, Σ. (2007). Ποιοτική έρευνα σε έξι εύκολα βήματα: Η επιστημολογία, οι μέθοδοι και η παρουσίαση. *Νοσηλευτική, 46(1),* 88-98.
20. Msimanga, M., R., (2020). The Impact of Micro Teaching Lessons on Teacher Professional Skills: Some Reflections from South African Student Teachers. *International Journal of Higher Education 10(2), 164.* Retrieved 20/10/2021 from DOI: 10.5430/ijhe.v10n2p164.
21. Nasar, A., Kaleka, M.B., (2020). The Effect of Distance Learning With Learner Center Micro Teaching. *JURNAL ILMU PENDIDIKAN FISIKA (JIPF). Vol 5(3),* 159-168. Retrieved 24/10/2021 from https://journal.stkipsingkawang.ac.id/index.php/JIPF/article/view/1834.
22. Newton, P. (2007). Clarifying the Purposes of Educational Assessment. *Assessment in Education, 14(2),* 149-170.
23. Provus, M.M. (1971). Discrepancy evaluation. Berkeley, CA: McCutcham. Tyler, R.W. (1942). *General statements on evaluation. Journal of Educational Research, 35,* 492-501.
24. Robson, C. (2010). *Real-World Research—A Tool for Social Scientists and Professional Researchers* (Translated by Dalakou, V., Vasilikou, K.). Athens: Gutenberg (1993 Edition).
25. Scotland, J., (2012). Exploring the Philosophical Underpinnings of Research: Relating Ontology and Epistemology to the Methodology and Methods of the Scientific, Interpretive, and Critical Research Paradigms. *English Language Teaching; V 5(9),* 9-15. Retrieved 20/10/2021 from https://eric.ed.gov/?id=EJ1080001.
26. Σοφός, Α., Δάρα, Μ. και Τσάρπα, Ι., (2013). *Η αξιοποίηση της μικροδιδασκαλίας στο πλαίσιο της*

© 2023 Global Journals

Πρακτικής Άσκησης Α΄ Φάσης: Η οπτική των φοιτητών. Κρήτη: Εκδόσεις Πανεπιστημίου Κρήτης.
27. Τσιώλης, Γ. (2014). *Μέθοδοι και Τεχνικές Ανάλυσης στην Ποιοτική Κοινωνική Έρευνα.* Αθήνα: Κριτική.
28. Φρυδάκη, Ε., (2009). *Η διδασκαλία στην τομή της νεωτερικής και της μετανεωτερικής σκέψης.* Αθήνα: Κριτική.
29. Χατζοπούλου, Κ. (2014). *Διερεύνηση των διαδικασιών μύησης των υποψήφιων εκπαιδευτικών στο στοχασμό κατά την περίοδο της πρακτικής άσκησης*. Διδακτορική Διατριβή. Πανεπιστήμιο Θεσσαλίας, Βόλος.
30. Zahid, M., Khanam, A. (2019). Effect of Reflective Teaching Practices on the Performance of Prospective Teachers. *Turkish Online Journal of Educational Technology - TOJET, V 18(1),* p 32-43. Retrieved 8/3/2022 from https://eric.ed.gov/?id=EJ1201647.

© 2023 Global Journals

This page is intentionally left blank

© 2023 Global Journals

Global Journal of human-social science: G
Linguistics & Education
Volume 23 Issue 2 Version 1.0 Year 2023
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-460X & Print ISSN: 0975-587X

The Evaluation of the Educational Project in Students with Special Educational Needs (Sen) in Regular School

By Thanopoulou Athanasia Med

University of Cordoba

Summery- The assessment of the educational project has occupied the researchers of educational evaluation in the last decades in general education as well as in special education. The necessity of teacher evaluation is aimed at their professional improvement and the qualitative upgrading of their role in the context of co-education (parallel support and integration of departments) of children with Special Educational Needs (SEN) in the general school. The aim of this research proposal is to investigate the attitudes of teachers towards the evaluation of their work in the context of co-education of students with SEN and without SEN, but also to establish the relationship that exists between the evaluation and the improvement of their educational work.

Keywords: *assessment, teachers, co-education, drunkards with special educational needs.*

GJHSS-G Classification: *DDC Code: 371.90942 LCC Code: LC58*



Strictly as per the compliance and regulations of:

© 2023. Thanopoulou Athanasia Med. This research/review article is distributed under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0). You must give appropriate credit to authors and reference this article if parts of the article are reproduced in any manner. Applicable licensing terms are at https://creativecommons.org/licenses/by-nc-nd/4.0/.

The Evaluation of the Educational Project in Students with Special Educational Needs (Sen) in Regular School

Thanopoulou Athanasia Med

Summary- **The assessment of the educational project has occupied the researchers of educational evaluation in the last decades in general education as well as in special education. The necessity of teacher evaluation is aimed at their professional improvement and the qualitative upgrading of their role in the context of co-education (parallel support and integration of departments) of children with Special Educational Needs (SEN) in the general school. The aim of this research proposal is to investigate the attitudes of teachers towards the evaluation of their work in the context of co-education of students with SEN and without SEN, but also to establish the relationship that exists between the evaluation and the improvement of their educational work.**

Keywords: assessment, teachers, co-education, drunkards with special educational needs.

I. Introduction

In recent years, special education in public education has been implemented in a scientific and organized manner, while it has now become mandatory according to law 3699/2008. As it follows from this law on special education, the difference between students with Special Educational Needs (SEN) and students without SEN. in a normal school it is found in the existence of a serious learning difficulty or some psychopathology or motor difficulty on the part of the students (Αθανασιάδης, 2001). This results in the emotional load and pressure that special education teachers receive being intense. The degree of responsibility they have is great given that special education students are often unable to perceive dangers and protect themselves. This means that the teacher is constantly alert and ready (Κοσμίδου, 2005). Of course, teachers who have to face such difficulties, the question arises as to whether they have training in this subject. Now that special education has begun to develop in our country, there is a question of organizing and improving the effectiveness of the education of these individuals and the characteristics of educational practice (Νούτσος, 2001; Adams et al., 2016). The present research is part of this effort, which seeks to investigate the attitudes of teachers towards the evaluation of their work and to find the relationship that exists between the evaluation of the educational work and its improvement.

Author: Ph.D Candidate, Department of Sociologist and Specialist Educator, Ph.D Candidate of University of Cordoba, Spain.
e-mail: thanopathan2@yahoo.gr

The purpose of the research is to investigate the attitudes of special education teachers towards the evaluation of their educational work, and also to investigate the relationship that exists between the evaluation and the improvement of their educational work in the context of the co-education of students with and without SEN.

The research questions of this research are:

A) What is the attitude of the teachers regarding the evaluation of their educational work (Positive - Negative)?
B) What is the relationship between the evaluation of teachers' work and the improvement of their educational work in a class with students with SEN?

The educational research of the last decades has highlighted the need for the co-education of students with SEN. in the general school together with the other children, giving the possibility to smoothly integrate these children into the school community (Voros, 2000). This position leads to the view that the work of teachers with students with SEN. in the general school it is charged with a more complex role, which makes the need for evaluation imperative in the educational work. From the review of the literature, it was found that there are researches related to this topic which, however, do not cover several aspects of the topic, so it is considered appropriate to investigate the teachers' attitudes towards the evaluation and also the possibility of improving the project through the evaluation (Δημητρόπουλος, 1999; Ευσταθίου, 2018).

Through the evaluation of the educational work, it is sought to make judgments and findings about the functioning of the educational process, educational policy, educational programs, school textbooks, the teacher and the student. In this sense, assessment is part of the whole of education. Research results show that the implementation of evaluation leads to an improvement in the quality of their work, to changes and innovations, to feedback, self-awareness and responsibility of teachers (Δημητρόπουλος, 1999; Ευσταθίου, 2018). We also find the achievement of students, the highlighting of teachers' weaknesses and their support in educational programs, enhancing the professional prestige, the quality of the work and the effectiveness of the educational system (Βωρός, 2000; Adams et al., 2016).

© 2023 Global Journals

This study will explore teachers' attitudes towards assessment. In particular, it will study the positive and negative attitudes, feelings and behaviors of teachers for evaluation. A second element he will study is the relationship between evaluation and improvement. Specifically, we will emphasize the quality of the educational work, the personal and professional development of the teacher, the strengthening of the pedagogical relationship between teachers and students with SEN, the highlighting of mistakes and weaknesses and their treatment, as well as the development of a climate of mutual respect and trust in the classroom, but also the help of students with SEN. to the right to education and participation in the school community as equal members.

II. Theoretical Part

a) *Literature review*

The attitudes that teachers have towards the evaluation of their work in relation to the teaching of children with SEN. in a regular school, they split into two directions. One direction is positive and the other is negative. The evaluation affects the functioning of the education in terms of the quality of the project, the difficulty of achieving the educational goals for the two categories of children and their training in special education, the personal and professional development of the teacher, the strengthening of the pedagogical relationship, the marking of weaknesses and mistakes and an effort to eliminate them, as well as the development of a climate of mutual respect and trust of teachers and students with or without SEN.

The attitudes of teachers towards assessment has occupied the educational community for decades, especially in the sensitive part of education which is special education. In most European countries, the quality and evaluation of educational work are considered as two interdependent concepts and as a basis for educational practices (Angelidis, 2004). It is a parameter that controls the reliability of the educational system, planning, organization, operation of schools, the effectiveness of educational planning and the implementation of educational policies.

Evaluation has been applied in recent decades in many European countries with the aim of improving the quality of educational work through the activation and conscious functioning of teachers (Ζουγανέλης et al., 2007). In this way, the school unit creates conditions for innovations, reconstruction and formation of educational practices.

The evaluation of the educational project has a systemic character, since it is directly related to all aspects of education. Research reports that assessment has a feedback role contributing to the improvement of teaching practice, to the understanding of weaknesses, needs and motivations for self-improvement (Δούκας, 1999). The necessity of the evaluation can be seen from official institutional frameworks such as the law 2986/2002, through which it tries to find application and ways of implementation in educational practice, in the context of the co-education of children with SEN. in regular school.

The educational work concerns the result of the teaching work and the products of the educational system. Teaching tools, equipment, teaching methods, all actions and efforts of the teacher creating a pedagogical relationship with all students are approached through the provision of evaluation with the aim of improving them (Μπαγάκης, 1999).

From the institutional framework 3699/2008 we can establish the mandatory implementation of the co-education of students with SEN in a general school for primary and secondary education, but also for the more general education of children with special needs from the Special Vocational Education and Training Laboratories and the Diagnostic and Counseling Support Centers. In this way, educational services are provided to students with disabilities and identified educational needs from a team of various specialties (Καραγιάννη, 2018).

From the research results, it appears that teachers are suspicious and skeptical of the institution of evaluation. This arises because of the lack of meritocracy that exists in the administration, by whom and how the evaluation will be done. The teachers' attitudes and feelings appear as pressure, stress and control of the educational work, having to deal with both cases of children. It limits pedagogical freedom leading to a reduced performance of their work (Ανδρέου, 2003).

The improvement of educational work through assessment is commonly accepted by many researches. Specifically, it contributes to the quality of the project, to personal and professional development, providing the opportunity to deal with other aspects of education, such as special education (Βερεβή, 2003). It strengthens relationships of trust and respect among the actors of the educational community, identifying weaknesses and mistakes, thereby creating conditions for improvement (Βερεβή, 2003). With the evaluation, teachers will become aware of the functions of education and their role, cultivating co-responsibility and self-commitment, giving the possibility for a smooth and fair education for children with SEN (Καραγιάννη, 2018).

The synthesis of the results of other research shows the suspicious attitude of teachers towards assessment. In the work of Χαιδεμενάκου (2005) we find that the evaluation is important because in this way we will discover the personal criteria that each teacher has for the evaluation and through them we will be able to understand how he accepts the plans for its implementation. Although it is legally institutionalized (2986/2002), in the last 3 decades no evaluation has

© 2023 Global Journals

been done at the two levels of education and the teachers have no experience of evaluation programs.

After evaluating students and the education system, teachers should also be evaluated. The teachers' attitudes towards this process have two directions. The first appears to be positive from the teachers' point of view, considering that evaluation is the means that ensures meritocracy, activates all the factors of the educational community, cultivates the climate of mutual respect and trust (Αγιακλή, 2003). It shows the educational hierarchy in a specific way as well as the fields of interventions. According to Αθανασιάδη (2001) "... evaluation works as a motivation for improvement for teachers" (p. 146). It leads to the discovery of real needs of the teacher and can form the basis of their work in this difficult part of special education education. Through evaluation, the teacher can assume his share of responsibility, while at the same time the possibility of offering adequate educational services is ensured (Καρατζιά - Σταυλιώτη, 1999; Καραγιάννη, 2014).

The second direction concerns the teachers' negative attitudes and criticisms of the assessment. Many consider that evaluation is the means that exerts stress, pressure, limits the pedagogical freedom of the teacher, leading the teaching work to a reduced performance, taking into account the difficulties of students with SEN (Χαιδεμενάκου, 2005). Still, there is the fear of the non-meritorious and objective criteria of those who will be chosen to evaluate (Μαυρογιώργος, 2002; Στασινός, 2020). Another element that has been criticized is the dependency relationships created between evaluators and teachers affecting the educational community and creating conditions of stress. The definition of the criteria combined with the lack of dialogue makes teachers cautious (Ζουγανέλης et al., 2007). A landscape of doubt and suspicion is created for their assessment.

Regarding the relationship between evaluation and project improvement, research shows that the role of evaluation is important. Evaluation contributes to upgrading and improving the quality of the educational process. In this way, changes and innovations are promoted, the feedback and self-awareness of teachers is strengthened (Πασιαρδής, 1994). The development of teachers' responsibility and initiative strengthens their pedagogical freedom and improves the performance of students with or without SEN.

The possibility of pointing out and correcting mistakes, weaknesses and shortcomings of the teacher will contribute to the development of a climate of trust, cooperation and mutual respect between students and teachers and will lay the foundations for a proper pedagogical relationship (Παπασταμάτης, 2001; Καραγιάννη, 2014). Finally, it strengthens the mobilization of teachers' interest in school matters, resulting in their systematic work, their active participation and taking initiatives for planning the educational work within the school community (Βερεβή, 2003).

We appreciate that if the teachers, the education officials and all the actors of the educational community want it, considering that this is an integral element of their work, they can contribute so that the evaluation acquires the form of a fruitful process, thus activating all its actors educational community and highlighting designs that will open new fields in special education.

III. Methodology

The present study is a descriptive review of teacher evaluation in the context of collaborative learning. We will investigate the positions of the teachers for the evaluation of their educational work.

a) Data analysis - results

i. *Objectives*

As previously mentioned, the main objective of this work is to determine the intervention of the evaluation of teachers with the aim of improving their educational work, as well as the investigation of the positions of teachers in relation to the evaluation of their work in the context of the co-education of students with special educational needs and without special educational needs, but also to establish the relationship between the evaluation and the improvement of their educational work.

- to establish the advantages and disadvantages of the educational project through the evaluation.
- to offer feedback to teachers.
- to take the form of a fruitful process thus activating all the actors of the educational community and highlighting designs that will open new fields in special education.

Based on the above objectives, the hypotheses are as follows:

Hypothesis 1: Teachers emphasize the need to implement the evaluation of the educational project.

Hypothesis 2: The support of the educational process through evaluation is a factor that contributes to the improvement of the educational work.

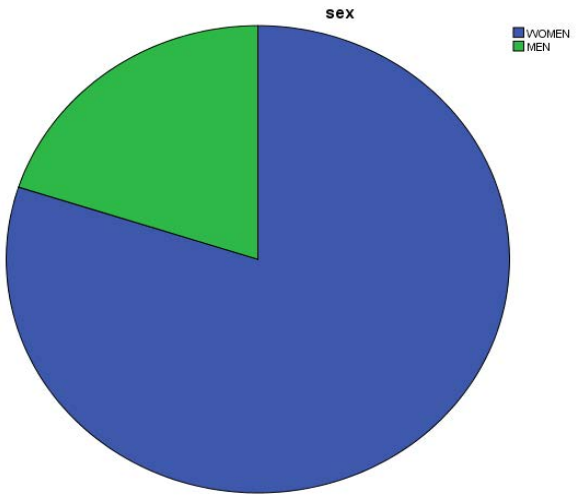
Hypothesis 3: The implementation of the evaluation does not limit the pedagogical freedom of the teacher.

ii. *Sample*

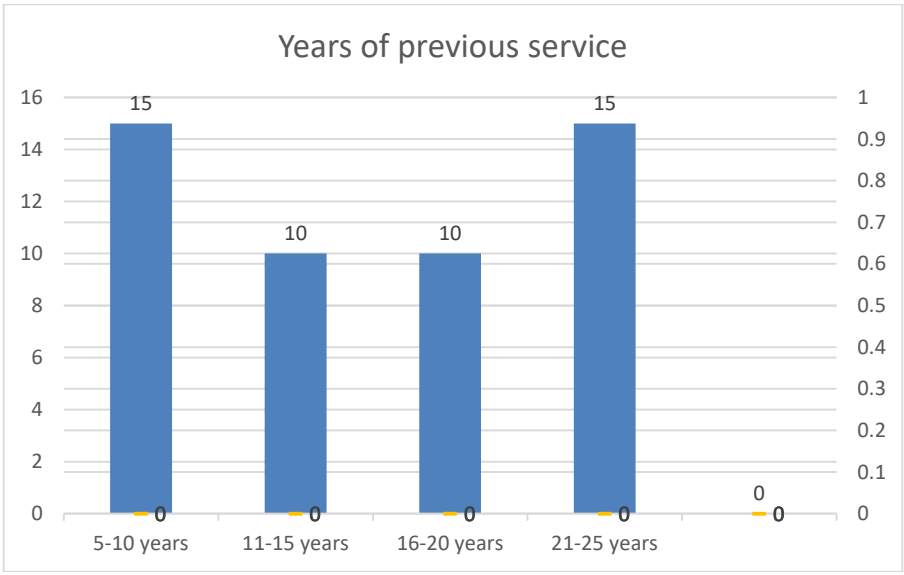
The sample, for the present research question, consisted of secondary general education teachers in a provincial town in the Peloponnese, in Greece. 50 teachers participated, 10 men and 40 women with experience in special education, 30 teachers from all over the world. Finally, teachers have a bachelor's degree, a smaller proportion have a master's degree, and none have a doctorate.

© 2023 Global Journals

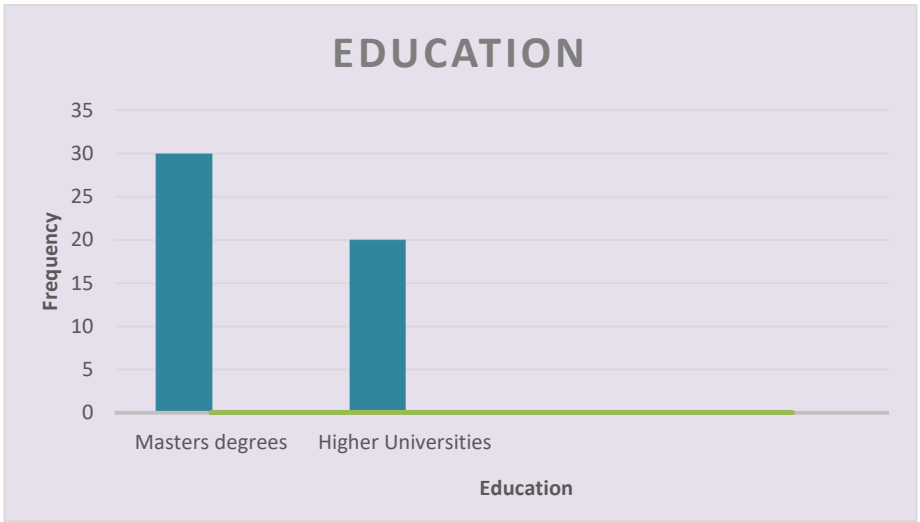
1. Sample distribution according to sex



2. Sample distribution according to years of previous servise



3. Sample distribution according to education



© 2023 Global Journals

iii. *Instrument*

For the research question we select the questionnaire with which we will collect the information that will be given to us by the respondents. Questions will be closed-ended and individuals will be asked to answer by selecting a number from the five. Completing, encoding and analyzing data will be easier. Also, with the questionnaire, subjects are given the opportunity to answer all in exactly the same frame of reference. Participants were asked to complete an anonymous questionnaire that included 10 closed-ended questions from which teachers were asked to choose one of the suggested options. The questionnaire refers to teachers' views towards the evaluation of their educational work and What is the relationship between the evaluation of the teachers' work and the improvement of their educational work in a class with students with special educational needs. The time required to complete it was 15 minutes and it was completed at the end of the course. The questionnaire is listed at the end of the text.

The type of questions will be of the closed type and will be the scale graded from the negative point to the positive and will be asked by the subject of the survey to choose one of the five.

iv. *Procedure*

The method of questioning will be done by visiting the researcher in a group of people, that is, at school. So, we seek to involve many people in the research in a minimum of time and at the same time. We also have the possibility of clarification and more information to solve questions that may arise during the completion of the questionnaire.

v. *Analyses conducted*

Data analysis:

The analysis of the data was descriptive to see the frequency in the teachers' answers and the percentage in each answer.

The following analytical tests were conducted with the SPSS (v.23) statistics package:

- A descriptive study of all the items in the questionnaire (measures of centrality - mean), and dispersion (standard deviation).
- A descriptive study of all the items in the questionnaire (measures of centrality -mean), and dispersion (standard deviation).
- An analysis of variance to verify the existence of a relationship between the 3 dimensions of the questionnaire and the independent variables: gender, and academic year.
- The relation between the dimensions that comprised the questionnaire were verified with bivariate correlations.
- ANOVA, t-test, post-hoc analysis was performed.

The Pearson Ratio was calculated, as well as Cronbach's Alpha, to show reliability.

IV. Results

a) Descriptive study

Initially, the following tables give a picture of gender, studies, previous service in general and special school and the participation of teachers in training programs.

Table 1: Distribution of a sample based on gender and on the qualifications.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	WOMEN	40	80,0	80,0	80,0
	MEN	10	20,0	20,0	100,0
	Total	50	100,0	100,0	

Specifically, the percentage of men is 20% and of women 80% (Table 1). The qualifications are 100% Higher Education Institutions and 0% Technological Institutions (Table 1).

Table 2: Sample distribution based on the master's degree and doctoral details.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Masters Degrees	30	60,0	60,0	60,0
	Higher Universities	20	40,0	40,0	100,0
	Total	50	100,0	100,0	

From the data we have gathered we can see that a large part of the sample has not done postgraduate studies. Specifically, the 31,5% of teachers hold a master's degree, while 6,5% have not done postgraduate studies (Table 2). Regarding the answer for obtaining a doctorate, we find that none of the respondents in the sample have a doctorate. According to the data we collected we find that 100% have not completed doctoral studies (Table 2).

© 2023 Global Journals

Table 3: Distribution of a sample based on teaching experience in general schools.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5-10 years	15	30,0	30,0	30,0
	11-15 years	10	20,0	20,0	50,0
	16-20 years	10	20,0	20,0	70,0
	21-25 years	15	30,0	30,0	100,0
	Total	50	100,0	100,0	

Regarding the years of previous service in the general school, we can find that from 5-10 years the percentage is 30%, from 11-15 years the percentage is 20%, from 16-20 years 20% and from 21-25 25% (Table 3).

Table 4: Sample distribution based on teaching experience in special schools.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 years of experience	45	90,0	90,0	90,0
	no experience	5	10,0	10,0	100,0
	Total	50	100,0	100,0	

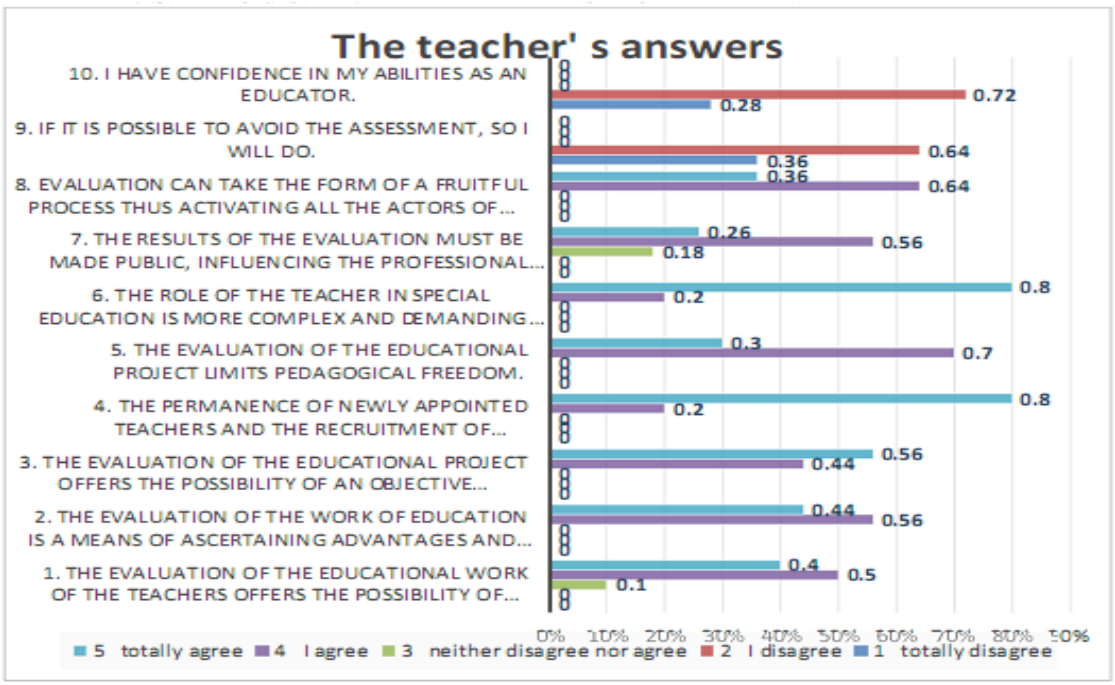
According to Table 4, we find that several teachers have worked in special schools. Thus, the percentage of experience in special education ranges from 1-5 years, 90% of the sample seems to have experience in special education (Table 4).

Table 5: Sample distribution based on special education training.

Sex Questions	Men	Total	Women	Total	Total
Yes	0	0%	0	0%	0%
No	0	0%	0	100%	100%
Total	10	0%	40	100%	100%

In this table we can see that the 100% have not attended training seminars in use of Social Welfare Robots in children with autism (Table 5).

4. Sample distribution according to the teachers' answers



© 2023 Global Journals

In this section, a descriptive analysis of the answers given to all teachers will be presented for each question. Each question is given a table with the teachers' answers in descending order.

To the question 1 «The evaluation of the educational work of the Teachers offers the possibility of feedback to the teachers », we find that 50% of teachers that they agree, the 40% that they totally agree and the 10% that they neither disagree nor agree. There is no answer to the totally disagree and I disagree (percent 0%).

To the question 2 « The evaluation of the work of education is a means of ascertaining advantages and disadvantages of the educational system », most of the teachers in the sample at 56% agree, 22 teachers with 44% totally agree. There is no answer to the neither disagree nor agree, totally disagree and I disagree (percentage 0%).

To the question 3 « The evaluation of the educational project offers the possibility of an objective assessment of the educational project », the choice "totally agree" of 28 teachers at a rate of 56% prevails, followed by the option "agree" with 22 teachers at a rate of 44%. No answer is given to the options neither disagree nor agree, totally disagree and I disagree (percentage 0%).

To the question 4 « The permanence of newly appointed teachers and the recruitment of substitutes must be linked to the results of the evaluation », 80% of teachers 40 of the total prefer the “totally agree”, while 10 teachers, the 20%, shows preference in answer “I agree”. No answer is given to the options “neither disagree nor agree”, “totally disagree” and “I disagree” (percentage 0%).

To the question 5 « The evaluation of the educational project limits pedagogical freedom» the preference of 35 teachers reaches 70% in the “I agree”, while “totally agree” is preferred by 15 teachers in 30%. The options “neither disagree nor agree”, “totally disagree” and “I disagree” are not selected (0%).

To the question 6 « The role of the teacher in special education is more complex and demanding than in general education » out of 50 teachers, 40 prefer the answer about of “Totally agree” 80%, while 10 of the total prefer “I agree” at a rate of 20%. The options “neither disagree nor agree”, “totally disagree” and “I disagree” are not selected (0%).

To the question 7 « The results of the evaluation must be made public, influencing the professional development of teachers » most of the teachers in the sample at 56% prefer the answer “I agree”, the sample at 26% state that the “totally agree”, while the 18% state that the “neither disagree nor agree”. No answer is given to the option that “totally disagree” and “I disagree” (percentage 0%).

To the question 8 « Evaluation can take the form of a fruitful process thus activating all the actors of the educational community and highlighting designs that will open new fields in special education » most of the teachers in the sample at 64% prefer the answer “I agree” and the 36% state of the “totally agree”. The options “neither disagree nor agree”, “totally disagree” and “I disagree” are not selected (0%).

To the question 9 « If it is possible to avoid the assessment, so I will do » the choice “I disagree” of 32 teachers at a rate of 64% prevails, followed by the option “totally disagree” with 18 teachers at a rate of 36%. No answer is given to the options “neither disagree nor agree”, “I agree” and “totally agree” (0%).

To the question 10 « I have confidence in my abilities as an Educator » we can see that the out of 50 teachers, 36 prefer “I disagree” in percentage 72%, While 14 of the total prefer “totally disagree” at a rate of 28%. No answer is given to the options “neither disagree nor agree”, “I agree” and “totally agree” (0%).

Pearson's Correlation Coefficient

The Pearson Correlation Coefficient is a numerical measure or indicator of the magnitude of the correlation between two sets of values. Correlation tests explain whether and to what extent changes in one variable are related to changes in another variable. (Gnardellis, 2009) The correlation coefficient (effect) of the examined variables is $r(50)=0.000$, so there is a positive correlation between the variables. This means that the scale The evaluation of the educational work of the Teachers offers the possibility of feedback to the teachers correlates with the scale The evaluation of the educational project offers the possibility of an objective assessment of the educational project. The significance level is less than 0.001, so the significance level $p < 0.001$, an association is observed. ($r(50) = 0.000$, $df = 50$, $p < 0.001$).

ANOVA

In order to check whether the mean values of a quantitative variable differ between the categories of a qualitative variable, when it has more than two categories, you use One-Way ANOVA. The Levene Test of Equality of Error Variances shows whether the variances are equal, in this case for the scale The evaluation of the educational work of the Teachers offers the possibility of feedback to the teachers and the teachers' seniority, it gives the level of significance $p < 0.05$. Consequently, it is true that there is a significant difference between the dispersions. While from the ANOVA table there is a statistically significant effect between the variables, $p=0.000<0.05$.

The Levene Test of Equality of Error Variances shows whether the variances are equal, in this case for the scale The evaluation of the work of education is a means of ascertaining advantages and disadvantages of the educational system and the teachers' seniority, gives the level of significance $p < 0.05$. Consequently, it is true that there is a significant difference between the

© 2023 Global Journals

dispersions. While from the ANOVA table there is a statistically significant effect between the variables, p=0.000<0.05.

In the post hoc table, it is observed that in both the 2 analyzed likert categories, it is observed that they are significantly correlated with p-value= 0.000<0.005 in the years 5-10 and 21-25 years.

Comparing the question concerning The role of the teacher in special education is more complex and demanding than in general education, the Likert scale was used to record the opinions, with high values corresponding to disagreement and low values to agreement (this results from the arbitrary coding that we gave) in relation to gender. The first table contains the averages and standard deviations of the values of the dependent variable of the two groups (men-women). In the second table the first row refers to the Levene test for equality of variances. Depending on the significance value of this test we accept the assumption of equal variances or not (here the power of the assumption of equal variances is 0.000, less than 0.05 so we do not accept that the variances are equal. Therefore we check the significance of the t-test in first line. Also, it was observed that there is no statistical significant relationship, as shown in the tables P-value= 0.080>0.05, so they are not significantly correlated with each other.

The correlation coefficient (effect) of the examined variables is r(50)=0.000, so there is a positive correlation between the variables. This means that the scale <<more time should be devoted to children with autism in the school curriculum playing with the robot>> correlates with the scale of question 7. The level of significance is less than 0.001, so the level of significance p <0.001, correlation is observed. (r (50)= 0.000, df= 50, p < 0.001).

The correlation coefficient (effect) of the examined variables is r(50)=0.000, so there is a positive correlation between the variables. This means that the scale of question 9 is correlated with the scale of question 10. The significance level is less than 0.001, so the significance level p <0.001, a correlation is observed. (r (50)= 0.000, df= 50, p < 0.001).

Comparing questions 9 and 10 regarding which the Likert scale was used to record opinions, with high values corresponding to disagreement and low values to agreement (this results from the arbitrary coding we gave) in relation to the level of education. The first table contains the averages and standard deviations of the values of the dependent variable of the two groups (men-women). In the second table the first row refers to the Levene test for equality of variances. Depending on the significance value of this test we accept the assumption of equal variances or not (here the power of the assumption of equal variances is 0.000, less than 0.05 so we do not accept that the variances are equal. Therefore we check the significance of the t-test in first line. Also, it was observed that there is a statistical significant relationship, as shown in the tables P-value=0.000<0.05, so they are significantly correlated with each other.

To calculate the reliability of the questionnaire, the Cronbach Alpha coefficient was examined, which studies the degree of internal consistency in which all the elements of a cumulative scale measure the same product, i.e. whether the specific questionnaire can be used as a tool for measuring the goals for which it was created. (Gnardellis, 2009) The reliability of the scale regarding questions 7, 8, 9 and 10 was calculated by the Cronbach alpha coefficient. From the Reliability Statistics table we have that Cronbach's coefficient is satisfactory (0.874). So the 4 questions of the questionnaire satisfactorily compose a scale.

The reliability of the scale regarding questions 1,2,3,4,5 and 6 was calculated by the Cronbach alpha coefficient. From the Reliability Statistics table we have that Cronbach's coefficient is satisfactory (0.880). So the 6 questions of the questionnaire satisfactorily compose a scale.

V. Conclusions

One of the most important effects received by education in the last decades has been the demand for inclusion, integration and co-education of children with special needs in the usual educational processes. Nowadays, the dominant view is that the school and the teacher have the obligation to educate all children with or without learning difficulties together. The acceptance of this point of view led to an evolution of education programs in the common school and their co-education in the same classes as children of their age. Participation in education is a democratic process.

The success of the institution of inclusive education depends on many and important factors: among them are the needs of students with SEN and disabilities, the parents of children with and without SEN and disabilities, the logistical infrastructure and others. However, one of the most important factors for the success or failure of the co-education of children with and without SEN and disability has been proven to be the role of the teacher's attitude, because this can influence the students in his class, colleagues, parents (Hegarthy, 1994; Στασινός, 2020). The issue of teachers' perceptions of co-education was and is the subject of intense reflection and has been systematically investigated by many researchers. Both positive and negative views of teachers on co-education are an important research topic and it is widely accepted that the successful implementation of co-education presupposes the positive attitude of teachers towards it (Avramidis & Norwick 2002:129). Positive attitudes of teachers can lead to a more positive approach to teaching students with disabilities or special educational

© 2023 Global Journals

needs in mainstream school (Jansma, & French, 1994). The differentiation that takes place in an inclusive context aims to benefit all students as well as the quality of the teaching practice. It requires teachers to reflect both on the knowledge they provide to students and on the very process of constructing knowledge (Ζώνιου - Σιδέρη et al., 2004).

From the results of the research, it appears that teachers are suspicious and skeptical of the institution of evaluation. This arises because of the lack of meritocracy that exists in the administration, by whom and how the evaluation will be done. The teachers' attitudes and feelings appear as pressure, stress and control of the educational work, having to deal with both cases of children. It limits pedagogical freedom leading to a reduced performance of their work.

The teachers' attitudes towards this process have two directions. The first appears to be positive from the teachers' point of view, considering that evaluation is the means that ensures meritocracy, activates all the factors of the educational community, cultivates the climate of mutual respect and trust (Αγιακλή, 2003). It shows the educational hierarchy in a specific way as well as the fields of interventions, the evaluation works as a motivation for improvement for teachers. It leads to the discovery of real needs of the teacher and can form the basis of their work in this difficult part of special education education. Through evaluation, the teacher can assume his share of responsibility, while at the same time the possibility of offering adequate educational services is ensured (Καρατζιά – Σταυλιώτη, 1999).

The second direction concerns the teachers' negative attitudes and criticisms of the assessment. Many consider that evaluation is the means that exerts stress, pressure, limits the pedagogical freedom of the teacher, leading the teaching work to a reduced performance, taking into account the difficulties of students with SEN (Χαιδεμενάκου, 2005). Still, there is the fear of the non-meritorious and objective criteria of those who will be chosen to evaluate (Μαυρογιώργος, 2002). Another element that has been criticized is the dependency relationships created between evaluators and teachers affecting the educational community and creating conditions of stress. The definition of the criteria combined with the lack of dialogue makes teachers cautious (Ζουγανέλης, et al., 2007). A landscape of doubt and suspicion is created for their assessment.

Bibliographical References

1. Αγγελίδης, Π. (2004) Ο ρόλος των σκιαγραφήσεων στη βελτίωση των σχολείων, *Επιστήμες της Αγωγής*, 2, 45-58.
2. Αγιακλή, Χ. (2003) Αξιολόγηση: Ελεγκτική Διαδικασία ή ουσιαστική λειτουργία, *Aspects,* 72, 41-43.
3. Adams, D., Harris, A. & Jones, M.S. (2016). Teacher-Parent Collaboration for an Inclusive Classroom: Success for Every Child, *Malaysian Online Journal of Educational Sciences*, Vol. 4, No. 3, pp. 58-72.
4. Αθανασιάδης, Χ. (2001), *Τα εκπαιδευτικά συνδικάτα και η αξιολόγηση των εκπαιδευτικών 1982-2000.* Στο Γ., Μπαγάκης (επιμ. εκδ.) Αξιολόγηση εκπαιδευτικών προγραμμάτων και σχολείου (σ.146–153). Αθήνα: Μεταίχμιο.
5. Ανδρέου, Α. (2003) Τάσεις και προσεγγίσεις για την αξιολόγηση στην εκπαίδευση, *Η λέσχη των εκπαιδευτικών*, 30, 20- 23.
6. Βερεβή, Α. (2003) Η συμβολή του εκπαιδευτικού στην αξιολόγηση και βελτίωση του εκπαιδευτικού του έργου, *Η λέσχη των εκπαιδευτικών*, 30, 23-26.
7. Βωρός, Φ. (2000) Αξιολόγηση της αξιολόγησης στην εκπαίδευση, *Φιλολογική,* 70, 66-67.
8. Δημητρόπουλος, Ε. (1999), *Εκπαιδευτική Αξιολόγηση - Η Αξιολόγηση της εκπαίδευσης και του εκπαιδευτικού Έργου.* Αθήνα: Γρηγόρης.
9. Δούκας, Χ. (1999). Ποιότητα και αξιολόγηση στην εκπαίδευση. Συνοπτική ερευνητική επισκόπηση. *Επιθεώρηση εκπαιδευτικών θεμάτων,* 1, 172 – 185.
10. Ευσταθίου, Μ., Α. (2018). *Η Διάγνωση, η Αξιολόγηση, η Εκπαίδευση των Ατόμων με Αναπηρία στην Ελλάδα και ο Αγώνας για Συμπεριληπτική Εκπαίδευση.* Θεσσαλονίκη: Εκδόσεις Γράφημα.
11. Ζουγανέλης, Α., ΚαΦετζόπουλος, Κ., Σοφού, Ε., Τσάφος, Β. (2007). Αξιολόγηση Το εκπαιδευτικού έργου. *Επιθεώρηση εκπαιδευτικού έργου,* 13, 135 – 151.
12. Καραγιάννη, Γ. (2014). Πρόλογος στην Ελληνική έκδοση των C. Barnes, M. Oliver & L. Barton: Σπουδές για την Αναπηρία και Παιδαγωγική της Ένταξης. Στο
13. Barnes C., Oliver, M. & Barton, L. (Επιμ. Γ. Καραγιάννη). Οι σπουδές για την αναπηρία σήμερα. Αθήνα: Εκδόσεις Επίκεντρο.
14. Καραγιάννη, Γ. (2018). Μαρξισμός, αναπηρία και εκπαίδευση. *Τετράδια Μαρξισμού*, τχ. 6, σ. 145 – 156.
15. Καρατζιά-Σταυλιώτη, Ε. (1999). Σχολική αποτελεσματικότητα – Μια συγκριτική Οικονομική Προσέγγιση. *Μέντορας,* 1, 49-76.
16. Κασσωτάκης, Μ. (2003). Αξιολόγηση του εκπαιδευτικού έργου και των εκπαιδευ-τικών. *Η λέσχη των εκπαιδευτικών,* 30, 3-8.
17. Κασσωτάκης, Μ. (1992). Το αίτημα της αντικειμενικής αξιολόγησης του εκπαι-δευτικού έργου και τα προβλήματά του. *Αξιολόγηση του Εκπαιδευτικού Έργου - Βασική κατάρτιση και επιμόρφωση των εκπαιδευτικών,* 46-70. Αθήνα: Εκδοτικός Όμιλος Συγγραφέων – Καθηγητών.
18. Κοσμίδου, Χ. (2005). *Ποιότητα εκπαιδευτικού έργου και αξιολόγηση.* Αθήνα: Ελληνικά Γράμματα.
19. Μαυρογιώργος, Γ. (2002), *Αξιολόγηση του εκπαιδευτικού: η εναρμόνιση του Πανοπτισμού.* Στο. Χ.,

© 2023 Global Journals

Κάτσικας & Γ., Καββαδίας, (επιμ.εκδ.) Η αξιολόγηση στην εκπαίδευση - Ποιος, ποιον και γιατί (σ. 139-149). Αθήνα: Σαββάλας.

20. Μπαγάκης, Γ. (1999). Αναζητώντας ελληνικό πλαίσιο συζήτησης για την αξιολόγη-ση στην εκπαίδευση. *Εκπαιδευτική Κοινότητα,* 49, 20-27.
21. Νούτσος, Μ. (2001) Εκπαιδευτικοί και φαντάσματα αξιολόγησης, *Εκπαιδευτική Κοινότητα,* 60, 24-29.
22. Ξωχέλλης, Π. (2006). *Ο εκπαιδευτικός στον σύγχρονο κόσμο.* Αθήνα: Τυπωθήτω -Γ. Δαρδανός.
23. Παπαναστασίου, Κ. & Παπαναστασίου, Ε. Κ. (2005). *Μεθοδολογία Εκπαιδευτικής Έρευνας.* Λευκωσία.
24. Παπασταμάτης, Α. (2001). Αξιολόγηση του έργου των εκπαιδευτικών. *Παιδαγω-γική Επιθεώρηση,* 31, 37-64.
25. Πασιαρδής, Π. (1994). Προς ένα σύστημα αξιολόγησης του έργου του εκπαιδευτι-κού. *Νέα Παιδεία,* 72, 15-33.
26. Στασινός, Δ. (2020). *Η ειδική εκπαίδευση 2020 plus. Για μια συμπεριληπτική ή ολική εκπαίδευση στο νέο ψηφιακό σχολείο με ψηφιακούς πρωταθλητές.* Αθήνα: Παπαζήσης.
27. Χαϊδεμενάκου, Σ. (2005). *Αξιολόγησης του εκπαιδευτικού έργου και εκπαιδευτικοί, από την πλευρά των εκπαιδευτικών Δ/βαθμιας εκπαίδευσης Νομού Θεσπρωτία.* Πάτρα: Διπλωματική εργασία.

Νόμοι και Προεδρικά Διατάγματα

1. Νόμος: 2986/2002 – ΦΕΚ 24/13-2-2002: Οργάνωση των περιφερειακών υπηρεσιών της Π/θμιας και Δ/θμιας εκπαίδευσης, αξιολόγηση του εκπαιδευτικού έργου και των εκπαιδευτικών και άλλες διατάξεις.
2. Νόμος: 3699/2008 - ΦΕΚ 199/Α'/2.10.2008. Ειδική Αγωγή και Εκπαίδευση ατόμων με αναπηρία ή με ειδικές εκπαιδευτικές ανάγκες.

© 2023 Global Journals

Global Journal of human-social science: G
Linguistics & Education
Volume 23 Issue 2 Version 1.0 Year 2023
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-460X & Print ISSN: 0975-587X

The Influence of Augmented Reality Technology on the Learning Interest, Achievement of Learning Goals and Cognitive Load of Middle School Students

By Yuan Ling, Zhang Xiao-Yun & LU Xiao-Xu

East China Normal University

Abstract- In order to test the influence of augmented reality technology on the learning interest, achievement of learning goals and cognitive load, an experimental study was conducted using the contour map teaching as an example. This paper selected 427 students from 8 classes in grade 7 of Zhantan Middle School in Xindu District of Chengdu as experimental samples, Classes with no significant difference in learning basic level were divided into experimental classes and control classes. The experimental classes adopted the AR three-dimensional video as teaching aids to give new lessons and the control classes adopted the traditional twodimensional video, and then the students' learning interest level, achievement of learning goals and cognitive load were measured. The results showed that the application of augmented reality technology in teaching could improve students' learning interest and achievement of learning goals, but had no effect on reducing cognitive load.

Keywords: augmented reality technology; learning interest; achievement of learning goals; cognitive load; contour map.

GJHSS-G Classification: DDC Code: 171.2 LCC Code: PA6308.D5



Strictly as per the compliance and regulations of:

© 2023. Yuan Ling, Zhang Xiao-Yun & LU Xiao-Xu. This research/review article is distributed under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0). You must give appropriate credit to authors and reference this article if parts of the article are reproduced in any manner. Applicable licensing terms are at https://creativecommons.org/licenses/by-nc-nd/4.0/.

The Influence of Augmented Reality Technology on the Learning Interest, Achievement of Learning Goals and Cognitive Load of Middle School Students

Yuan Ling [α], Zhang Xiao-Yun [σ] & LU Xiao-Xu [ρ]

Abstract- In order to test the influence of augmented reality technology on the learning interest, achievement of learning goals and cognitive load, an experimental study was conducted using the contour map teaching as an example. This paper selected 427 students from 8 classes in grade 7 of Zhantan Middle School in Xindu District of Chengdu as experimental samples, Classes with no significant difference in learning basic level were divided into experimental classes and control classes. The experimental classes adopted the AR three-dimensional video as teaching aids to give new lessons and the control classes adopted the traditional two-dimensional video, and then the students' learning interest level, achievement of learning goals and cognitive load were measured. The results showed that the application of augmented reality technology in teaching could improve students' learning interest and achievement of learning goals, but had no effect on reducing cognitive load.

Keywords: augmented reality technology; learning interest; achievement of learning goals; cognitive load; contour map.

I. Introduction

Augmented reality (AR) technology is an extension of virtual reality (VR) technology, which can achieve a visual hybrid enhancement effect through the fusion of artificially generated three-dimensional virtual images with the real world under the coordination of software and hardware (Cai Su, Wang Pei-wen, Yang yang, et al., 2016; Zhang Si-fang & Jiang Jia-fa, 2018). AR technology has the characteristics of virtual and real combination, real-time interaction and three-dimensional display, etc. Combining theories of learning motivation, constructivism, and behaviorism, it is found that AR technology can promote the occurrence of interaction, establish the connection between stimulus and response, and help learners construct and transfer knowledge. It has many advantages in creating a learning environment, improving learning interest, reducing cognitive load, improving learning effectiveness, innovating teaching methods, and improving interaction effects (Wang Guo-hua & Zhang Li-guo, 2017), which has led to the continued promotion of AR technology in the field of education.

Based on the research status of AR technology in teaching at domestic and abroad, it is found that domestic research mainly focuses on the introduction of application cases of AR technology in teaching, but a series of empirical studies have been conducted on the pedagogical use of AR technology by some domestic and foreign researchers, which confirms that AR technology has an influence on the achievement of learning goals, learning interest and cognitive load. Chiang et al (2014), and Carrera et al (2017) confirmed that AR technology is significantly superior to traditional inquiry learning methods in terms of stimulating students' learning interest, etc. Turan et al (2018), Carrera et al (2017; 2017), Yuan Ling (2019), and Chen Liang-ying (2019) found that AR technology is better than traditional teaching methods in the terms of promoting the achievement of learning goals. Hsiao et al (2013) found that mobile AR technology has a greater positive influence on students' academic performance and interest than multimedia teaching resources. In addition, some studies have shown that AR technology has the effect of reducing cognitive load (Wang Yuan, 2018). Lu Xiao-xu et al (2011) found a positive correlation between learning interest and achievement of learning goals. In addition, many studies have shown a negative correlation between cognitive load and achievement of learning goals (Wang C X, Fang T & Gu Y X, 2020).

Based on the cognitive load theory and the learning motivation theory, AR technology can reduce cognitive load, improve learning interest and achievement of learning goals as a learning aid. But the improvement of learning interest and the reduction of cognitive load will improve the achievement of learning goals. The theoretical model of the research design is shown in Figure 1.

Author α: College of Teacher Education, East China Normal University, Shanghai, China 200062. e-mail: 1093826281@qq.com
Author σ: School of Geography and Tourism, Qufu Normal University, Rizhao Shandong, China 276826.
Corresponding Author ρ: College of Teacher Education, East China Normal University, Shanghai, China 200062.
e-mail: xxlu@geo.ecnu.edu.cn

© 2023 Global Journals

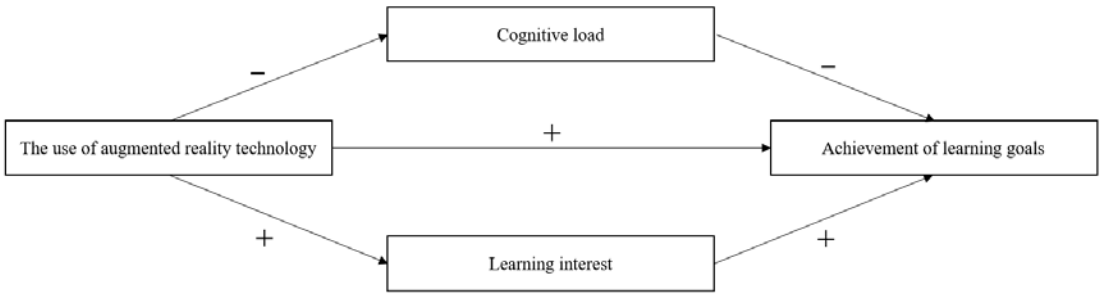


Figure 1: The theoretical model of the research design

This paper applies empirical thinking to verify the influence of AR technology on the achievement of learning goals, learning interest, and cognitive load. The following three hypotheses are proposed: Hypothesis 1: The use of AR technology has a significant positive influence on learning interest. Hypothesis 2: The use of AR technology has a significant positive influence on the achievement of learning goals. Hypothesis 3: The use of AR technology has a significant negative influence on cognitive load, i.e., it can reduce cognitive load. This study tests whether AR technology has the influence of improving learning interest, achievement of learning goals, and reducing cognitive load by means of a teaching experiment. To understand the effect of using AR technology and provide a reference for teachers to use AR technology in their daily teaching.

II. Method

a) Participants

The experiment was conducted at Zhantan Middle School in Xindu District of Chengdu. This experiment was based on a new geography curriculum of the contour map conducted in Zhantan Middle School in Xindu District of Chengdu. Zhantan Middle School in Xindu District of Chengdu is a new, high-standard and modern full-time junior middle school funded by the government of Xindu District, Chengdu. As a pilot unit of the modern school system, the school was named a pilot school of the "School of the Future" in Chengdu in January 2017, and was successfully declared a digital base school in Chengdu in September 2017. A total of 431 students from 8 classes in grade 7 were selected to participate in this experiment. After deleting 4 invalid data, the final sample size was 427.

b) Instrument

①The measurement instrument of learning interest: Huang Wenqian's (2019) geography learning interest scale was modified to form a geography learning interest questionnaire suitable for this experiment, including the three dimensions of behavioral attitude, emotional tendency, and value orientation. The questionnaire consists of 16 questions with "yes" and "no" options, including 8 forward-assigned and 8 reverse-assigned questions. In this study, the alpha coefficient of the scale was 0.805. ②The measurement instrument of achievement of learning goals: Using the contour skill test questions compiled by the researchers themselves, including 10 test questions. The measurement instrument has high validity and discrimination. In this study, the alpha coefficient of the scale was 0.608. ③The measurement instrument of cognitive load: Using the subjective measurement scale developed by Pass et al. (1994), which involves two dimensions of mental effort and task difficulty. The original two questions were modified to "how difficult do you think of interpreting topographical parts for learning in this lesson" and "how much effort did you put into learning the topographic parts of contour" according to the actual situation. The scale has been used in many studies and has high reliability and validity. Sun et al (2013) tested the reliability of the scale at 0.740. In this study, the alpha coefficient of the scale was 0.704.

c) Materials

In this study, the contour content in the "A good understanding of middle school geography" APP based on AR technology was selected as the teaching experimental material. The teacher used the advantage of the three-dimensional display of the APP to realize the observation of each mountain part in the three-dimensional model of the contour map by changing the angle of the mobile phone, and used the mobile phone to record the whole process to obtain AR three-dimensional video. At the same time, the teacher prepared a traditional two-dimensional video explaining the characteristics of the contour line.

d) Design

In order to reduce the contingency of the experiment, according to the geography mid-term scores of 431 students, the 8 classes were divided into 4 levels, and the 2 classes at the same level with similar scores were set as a group. They were divided into the experimental group and the control group respectively. A total of four groups were formed: Classes 7, 3, 1 and 5 of the grade 7 were used as experimental classes, and Classes 8, 2, 6 and 4 of the grade 7 were used as control classes. The mid-term scores of the experimental group and the control group are shown in Table 1. Table 1 shows that independent-samples t-test

© 2023 Global Journals

was conducted on the four groups of experimental classes and control classes, and the P values obtained are all greater than 0.05, indicating that the differences between the experimental control classes are not significant, and the experimental control conditions meet the requirements.

Table 1: Design & Test of the experimental group and control group (N = 431).

Group		Class	Number of Classes	Mid-term Average Score	t-test P-value*/ Significance of difference	Teaching Method
Group 1	Experimental class 1	Class 7, grade 7	53	67.02	0.657 Non-significant difference	Play AR three-dimensional video
	Control class 1	Class 8, grade 7	55	65.96		Play traditional two-dimensional video
Group 2	Experimental class 2	Class 3, grade 7	54	62.04	0.090 Non-significant difference	Play AR three-dimensional video
	Control class 2	Class 2, grade 7	54	57.56		Play traditional two-dimensional video
Group 3	Experimental class 3	Class 1, grade 7	53	55.17	0.941 Non-significant difference	Play AR three-dimensional video
	Control class 3	Class 6, grade 7	54	55.37		Play traditional two-dimensional video
Group 4	Experimental class 4	Class 5, grade 7	55	51.09	0.833 Non-significant difference	Play AR three-dimensional video
	Control class 4	Class 4, grade7	53	51.59		Play traditional two-dimensional video
Experimental classes of all	Experimental classes of 4 groups	Class 7, 3, 1, 5, grade 7	215	58.77	0.066 Non-significant difference	Play AR three-dimensional video
Control classes of all	Control classes of 4 groups	Class 8, 2, 6, 4, grade 7	216	57.69		Play traditional two-dimensional video

Note: "t-test P-value" is the P-value obtained by independent sample t-test for experimental groups 1, 2, 3, and 4.

III. Experimental Task

a) Procedure

The experiment was conducted from October 28 to November 1, 2019. Because the contour map has little relevance to prior knowledge, there is no need for a pre-test and the new lessons could be taught directly. In this experiment, in order to reduce the influence of other factors, the same teacher of Zhantan Middle School taught the new lesson to 8 classes, using the same instructional design and learning case, and presenting different video materials only in teaching methods. Before the lesson, we first created a situation in which five children lost their way in the process of climbing Heizhu Mountain. The teacher asked the students to contribute to the rescue, asking the students to mark the location points of the five children in distress on the topographic map of Heizhu Mountain according to the positioning data of the mobile phone. At the same time, they were also asked to name the topographic features near the location points. Then students evaluated and discussed the marking situation. In this process, students may have problems such as inaccurate marking of location points and disagreement on the discussion of topographic features. At this time, the teacher used video materials to teach contour knowledge and demonstrate contour lines and topographic landscape features of different topographic parts. The teacher conducted a live demonstration of AR in the experimental classes and played the recorded AR three-dimensional video in order to allow all students to see the demonstration process. The control classes played the traditional two-dimensional video (screenshots of the videos used in the experimental classes and the control classes are shown in Figure 2). The teacher closely follows the learning objectives to

© 2023 Global Journals

teach the characteristics of five mountain parts and their corresponding contour lines, while guiding the students to observe the different forms of contour lines corresponding to the steepness of the topographic.



Figure 2: Comparison of the experimental classes using AR three-dimensional video screenshots (left) and the control classes using traditional two-dimensional video screenshots (right).

After the end of the lesson, the teacher distributed questionnaires of geography learning interest, test questions of the contour line knowledge and skill, and scale of the cognitive load to measure the students' level of learning interest, achievement of learning goals, and cognitive load level.

b) Data Analysis

The SPSS 23.0 tool was used to analyze the learning interest level, achievement of learning goals, and cognitive load level of the samples of experimental classes and control classes. The independent-samples t-test was used to analyze whether the difference between experimental classes and control classes reached a significant level. The results of the analysis are shown in Table 2.

Table 2: Experimental data and analysis results of the control and experimental classes at Zhantan Middle School(N=427).

Classes Indexes		Class 7	Class 8	Class 3	Class 2	Class 5	Class 4	Class 1	Class 6	Experimental classes of 4 groups	Control classes of 4 groups
		Experimental class 1	Control class 1	Experimental class 2	Control class 2	Experimental class 3	Control class 3	Experimental class 4	Control class 4		
Valid experimental samples		53	54	54	54	53	55	52	52	212	215
Learning interest	Measurement level	91.39	87.50	90.86	80.44	87.26	78.52	87.98	82.33	89.39	82.18
	Difference of mean	3.89		10.42		8.74		5.65		7.21	
	T-value of mean comparison t-test	1.441		3.537		2.552		1.657		4.580	
	P-value of mean comparison t-test	0.153 Non-significant		0.001 Extremely significant		0.012 significant		0.101 Non-significant		0.000 Extremely significant	
Achievement of learning goals	Measurement level	79.25	83.89	88.33	78.33	74.65	68.73	80.77	72.12	80.79	75.77
	Difference of mean	-4.64		10.00		5.92		8.65		5.02	
	T-value of mean comparison t-test	-1.600		3.649		1.675		2.273		2.943	
	P-value of mean comparison t-test	0.113 Non-significant		0.000 Extremely significant		0.097 Non-significant		0.025 significant		0.003 Extremely significant	
Cognitive load	Measurement level	60.80	58.23	58.64	59.05	59.01	57.68	58.01	61.11	59.12	58.99
	Difference of mean	2.57		-0.41		1.33		-3.10		0.13	
	T-value of mean comparison t-test	1.146		-0.219		0.518		-1.104		0.107	
	P-value of mean comparison t-test	0.254 Non-significant		0.827 Non-significant		0.625 Non-significant		0.272 Non-significant		0.915 Non-significant	

© 2023 Global Journals

Comparing the level of learning interest between experimental classes and the control classes, the P value is 0.000, and the overall of all experimental classes (89.39 points) is significantly higher than that of all control classes (82.18 points), indicating that compared with the traditional two-dimensional video, AR technology is more effective in improving students' learning interest. Comparing the achievement of learning goals between experimental classes and control classes, the P value is 0.003, and the overall of all experimental classes (80.79 points) is significantly higher than that of all control classes (75.77 points), indicating that compared with the traditional two-dimensional video, AR technology is more effective in improving the achievement of learning goals. Comparing the level of cognitive load between experimental classes and control classes, the P value was 0.13. The overall of all experimental classes (59.12) was higher than that of all control classes (58.99), and the difference was not significant, indicating that compared with the traditional two-dimensional video, AR technology does not show the effect of reducing cognitive load. In general, the experiment confirms that AR technology is more conducive to improving learning interest and achievement of learning goals than traditional two-dimensional video, but it does not show the effect of reducing cognitive load.

IV. Result and Discussion

a) Result

Through the analysis of the experimental data, this study concludes that compared with traditional two-dimensional video, three-dimensional video based on AR technology can better improve students' learning interest and achievement of learning goals, but it does not show the effect of reducing cognitive load.

b) Discussion

①This paper analyzes the reasons why AR technology promotes students' learning interest and achievement of learning goals, which finds that AR technology has the characteristics of immersion, interactivity, three-dimensional display, etc. It immerses students and enhances their sense of presence and concentration. Students can also automatically adjust the angle and direction of the image to interact with the virtual image, which helps to improve the students' sense of experience. The characteristics of the three-dimensional display can turn abstraction into concrete, help students improve their ability of spatial imagination, and facilitate their understanding of knowledge, thus enhancing the achievement of learning goals. AR technology can provide an external learning environment of dynamic and highly interactive, which can promote interaction and collaboration between teachers and students, students and students, and students and the environment. At the same time, it can bring positive emotional experiences such as relaxation and pleasure to learners, so as to stimulate their internal learning motivation and improve their learning interest. Also, there are differences within the classes at different levels. When comparing each group of the experimental class and the control class individually, it was found that the highest-level classes were class 7 and class 8, and neither the learning interest nor achievement of learning goals in experimental class 7 was significantly higher than that in control class 8. This may be due to the students with the highest level having a good understanding. Both traditional videos and AR explanations allow this group of students to understand abstract knowledge like contour lines easily, so the difference is not significant. But as for the lower level of Class 5 and Class 4, Class 1 and Class 6, although achievement of learning goals and learning interest of experimental classes are higher than those of control classes, there is no significant difference in learning interest between Class 1 and Class 6, and there is no significant difference in achievement of learning goals between Class 5 and Class 4. This may be due to the fact that students in lower-level classes have poorer learning foundations, less seriousness in learning, relatively lower learning motivation, weaker learning ability, etc., which limit the effect of AR technology. Therefore, teachers should pay attention to the class students' learning situation when conducting teaching based on AR technology in general.

②AR technology did not show the effect of reducing cognitive load, which is consistent with the research conclusion of Yang Jian (2020). Whether AR technology can reduce cognitive load depends on the content itself. The Cognitive load consists of three components: internal, external, and related cognitive load. The total cognitive load increases with the amount of information processed and the total number of memories. The case selected for this study, a contour map, is abstract and complex in content. It requires a large amount of information to be processed by students, and it need a high internal cognitive load of students. After adding AR technology demonstration, students should master the judgment of plane contour map, and process the 3D model, so that students' cognitive resources are used for useless information, which increases external cognitive load and produces negative effects such as information redundancy and distraction. This also inspires teachers to consider the characteristics of the teaching content itself adequately. When using AR technology to teach complex content, they should choose software with a simple interface, otherwise, it may increase students' cognitive load (Dunleavy M, Dede C & Mitchell R, 2009; Frederiksen J G, Srensen S M D, Konge L, et al., 2020).

© 2023 Global Journals

Acknowledgments

The research was supported by the Ministry of Education of the People's Republic of China, Humanities and Social Sciences Research Project of the Year 2019 Funding Project (approval number: 19YJA880042). The authors would like to express their gratitude to the students who volunteered to participate in this study and to the teachers who helped with this study.

References Références Referencias

1. Cai Su, Wang Pei-wen, Yang Yang, et al. Review on augmented reality in education[J]. *Journal of Distance Education*, 2016, (5): 27-40.
2. Zhang Si-fang, Jiang Jia-fa. The research and prospect on the application of augmented reality in science education [J]. *e-Education Research*, 2018, (7): 64-69+90.
3. Wang Guo-hua, Zhang Li-guo. Augmented reality in education: themes, potentials and challenges[J]. *Modern Educational Technology*, 2017, (10): 12-18.
4. Chiang T H C, Yang S J H, Hwang G J. An augmented reality-based mobile learning system to improve students' learning achievements and motivations in natural science inquiry activities [J]. *Journal of Educational Technology & Society*, 2014, (4): 352-365.
5. Carrera C C, Perez J L S, Cantero J D L T. Teaching with AR as a tool for relief visualization: Usability and motivation study[J]. *International Research in Geographical and Environmental Education*, 2017, (1): 69-84.
6. Turan Z, Meral E, Sahin I F. The impact of mobile augmented reality in geography education: Achievements, cognitive loads and views of university students[J]. *Journal of Geography in Higher Education*, 2018, (3): 427-441.
7. Carrera C C, Asensio L A B. Augmented reality as a digital teaching environment to develop spatial thinking[J]. *Cartography and Geographic Information Science*, 2017, (3): 259-270.
8. Carrera C C, Asensio L A B. Landscape interpretation with augmented reality and maps to improve spatial orientation skill[J]. *Journal of Geography in Higher Education*, 2017, (1): 119-133.
9. Yuan Ling, Lu Xiao-xu, Wu Cheng-ling, et al. The influence of AR technology on middle school students' achievement scale of learning goal——taking the contour map teaching as an example [J]. *Modern Educational Technology*, 2019, (11): 53-59.
10. Chen Liang-ying, Zhao Jun-min, Wang Guang-shuai, et al. The application research of augmented reality technology in the intervention of children with autism——taking the lexical cognitive intervention as an example[J]. *Modern Educational Technology*, 2019, (8): 86-92.
11. Hsiao H S, Chang C S, Lin C Y, et al. Weather observers: a manipulative augmented reality system for weather simulations at home, in the classroom, and at a museum[J]. *Interactive Learning Environments*, 2013, (1): 205-223.
12. Wang Yuan. A study of geography instructional design based on cognitive load and augmented reality [D]. *Xi'an: Shaanxi Normal University*, 2018: 6-37.
13. Lu Xiao-xu, Zhao Yuan, Zhu Hui, et al. The correlation of the presentation of classroom teaching aims of geography with teaching efficiency [J]. *Curriculum, Teaching Material and Method*, 2011, (1): 100-106.
14. Wang C X, Fang T, Gu Y X. Learning performance and behavioral patterns of online collaborative learning: Impact of cognitive load and affordances of different multimedia [J]. *Computers & Education*, 2020, (1): 103-116.
15. Huang Wen-qian, Du Feng-zhen, Sun Yu-yu, et al. Development and testing of a geography learning interest scale for secondary school students [J]. *Teaching Reference of Middle School Geography*, 2019, (18): 58-61.
16. Paas F G W C, Van Merriënboer J J G. Instructional control of cognitive load in the training of complex cognitive tasks[J]. *Educational Psychology Review*, 1994, (4): 351-371.
17. Sun Chong-yong, Liu Dian-zhi. A comparison of several subjective rating scales of cognitive load [J]. *Journal of Psychological Science*, 2013, (1): 194-201.
18. Yang Jian. An empirical study on influences of AR e-book on reading learning of primary school students [J]. *Library Theory and Practice*, 2020(1): 41-47.
19. Dunleavy M, Dede C, Mitchell R. Affordances and limitations of immersive participatory augmented reality simulations for teaching and learning[J]. *Journal of Science Education and Technology*, 2009, (1): 7-22.
20. Frederiksen J G, Srensen S M D, Konge L, et al. Cognitive load and performance in immersive virtual reality versus conventional virtual reality simulation training of laparoscopic surgery: a randomized trial[J]. *Surgical Endoscopy*, 2020, (3): 1244-1252.

© 2023 Global Journals

Global Journal of human-social science: G
Linguistics & Education
Volume 23 Issue 2 Version 1.0 Year 2023
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-460X & Print ISSN: 0975-587X

The Australian National Curriculum: The 2012 Reformation

By Danielle de Sousa Santos & Dirce Djanira Pacheco e Zan

State University of Campinas

Abstract- The study presented here is part of the results of postdoctoral research that aimed to investigate the approved curriculum reform in 2012 and implemented in Australia since then. In addition to seeking to know the organization and functioning of the Australian education system, this article intends, specifically, to explain the process of building the country's national curriculum and identify the dynamics and foundations of the current reform. The methodology used for this research was based on a qualitative, descriptive and analytical approach, based on bibliographic and documentary analysis. From this analysis, it can be concluded, among other things, that the Australian curriculum reform is the result of a long process of debates and ideological political disputes that lasted two decades. In spite of the arguments regarding social equity and justice, the principles and foundations that support this reform are strongly marked by neoliberal ideas. Regarding the consequences of this process, in this text, the obstacles to the implementation of the current national curriculum stand out.

Keywords: *australian curriculum reform, australian education system, neoliberalism.*

GJHSS-G Classification: *DDC Code: 320.54 LCC Code: JC311*



Strictly as per the compliance and regulations of:

© 2023. Danielle de Sousa Santos & Dirce Djanira Pacheco e Zan. This research/review article is distributed under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0). You must give appropriate credit to authors and reference this article if parts of the article are reproduced in any manner. Applicable licensing terms are at https://creativecommons.org/licenses/by-nc-nd/4.0/.

The Australian National Curriculum: The 2012 Reformation

O Currículo Nacional Australiano: A Reforma de 2012

Danielle de Sousa Santos [α] & Dirce Djanira Pacheco e Zan [σ]

Abstract- The study presented here is part of the results of postdoctoral research that aimed to investigate the approved curriculum reform in 2012 and implemented in Australia since then. In addition to seeking to know the organization and functioning of the Australian education system, this article intends, specifically, to explain the process of building the country's national curriculum and identify the dynamics and foundations of the current reform. The methodology used for this research was based on a qualitative, descriptive and analytical approach, based on bibliographic and documentary analysis. From this analysis, it can be concluded, among other things, that the Australian curriculum reform is the result of a long process of debates and ideological political disputes that lasted two decades. In spite of the arguments regarding social equity and justice, the principles and foundations that support this reform are strongly marked by neoliberal ideas. Regarding the consequences of this process, in this text, the obstacles to the implementation of the current national curriculum stand out.

Keywords: australian curriculum reform, australian education system, neoliberalism.

Resumo- O estudo aqui apresentado é parte dos resultados de uma pesquisa de pós-doutorado que teve como objetivo investigar a reforma curricular aprovada em 2012 e implementada na Austrália desde então. Além de buscar conhecer a organização e o funcionamento do sistema de ensino australiano, este artigo pretende, mais especificamente, explicitar o processo de construção do currículo nacional do país e identificar as dinâmicas e os fundamentos da atual reforma. A metodologia utilizada para esta investigação se pautou em uma abordagem qualitativa, descritiva e analítica, tendo como base a análise bibliográfica e documental. A partir desta análise, pode-se concluir, entre outras coisas, que a reforma curricular australiana é resultado de um longo processo de debates e disputas políticas ideológicas que durou duas décadas. Em que pesem os argumentos referentes à equidade e justiça social, os princípios e os fundamentos que dão sustentação a esta reforma são fortemente marcados pelo ideário neoliberal. No que tange aos desdobramentos desse processo, destacam-se, neste texto, os obstáculos para implementação do atual currículo nacional.

Author α: Postdoctoral Fellow at the State University of Campinas. Ph.D in Education from the State University of Campinas (2018). Master in Education: History, Politics, Society from the Pontifical Catholic University of São Paulo (2010). e-mail: daniellesantos@ifsp.edu.br

Author σ: Graduated in Pedagogy (1991), Master's (1996) and Doctorate (2005) in Education from the State University of Campinas. He is currently a Professor at the Department of Teaching and Cultural Practices (DEPRAC) at the Faculty of Education / Unicamp.

Palavras-chave: reforma curricular australiana, sistema de ensino australiano, neoliberalismo.

I. Introdução

Sabemos que as políticas neoliberais se desenvolvem de maneiras diferentes em contextos diversos. No caso australiano, a alternância entre os governos trabalhistas e liberais, em geral, representou menor ou maior aprofundamento nos ajustes neoliberais. Conforme Reid (2019), foi o governo trabalhista de Hawke (1983-1991) que lançou as bases para a versão atualmente implementada na Austrália – mais severa, embora inicialmente com algumas distinções do neoliberalismo implementado nos EUA e na Inglaterra, e fortemente marcado pelas políticas de bem-estar social.

No período que antecedeu as eleições federais australianas em 2007, o debate em torno de um currículo nacional sinalizava para a relevância da temática tanto para a coalizão do Partido Liberal, no governo, como para seu principal opositor, ou seja, o Partido Trabalhista.

Os argumentos e as justificativas do governo do Partido Liberal para a criação de uma política nacional curricular, se pautavam basicamente nas críticas aos professores, aos estados e aos seus supostos ideólogos, ou defesa de uma escola neutra, o que pode ser comparado ao Brasil quando os professores são acusados de comunistas. Conforme Rose (2015), os ministros do governo do Partido Liberal defendiam a unidade do currículo para corrigir as diferenças entre os estados e resolver o problema da "má qualidade dos professores", ou, como disse a ministra Bishop, "tirar o currículo escolar das mãos de ideólogos nas burocracias de educação do Estado e do Território" (BISHOP, 2006, p. 3 *apud* ROSE, 2015, p. 115, tradução nossa). De certo modo, este discurso estava em consonância com um movimento internacional na busca pela padronização curricular dos diferentes sistemas educacionais, a partir da orientação de organismos internacionais (APPLE, 2002).

No caso do Partido Trabalhista, os argumentos e as justificativas estavam centradas no fortalecimento do desenvolvimento econômico, considerando a competitividade imposta pela globalização; no

© 2023 Global Journals

atendimento à "migração interna", isto é, ao deslocamento interestadual; e nosresultados, ou melhor, nas variações de resultados entre os estados – por exemplo, as taxas de retenção e desempenho escolar. Observamos, pois, que mesmo ressaltando os argumentos voltados para questões relativas à cidadania é possível afirmar que foram os interesses econômicos as motivações predominantes para a posição assumida pelo Partido.

Em comum entre os dois partidos - Liberal e Trabalhista - estavam as preocupações com o papel da educação no mundo e na economia globalizados e com a defesa da criação de um órgão que elaborasse o currículo nacional. As perspectivas conflitantes podem ser observadas nos documentos elaborados pelos diferentes governos, verificáveis nos objetivos, nos conhecimentos selecionados etc. Importante destacar que a ideia de um currículo nacional encontrou muitas resistências durante esse período por diferentes razões, dentre as quais a falta de clareza sobre os propósitos e os benefícios desse currículo, o que, de certo modo, se observa no longo processo que resultou no atual documento. Para Savage (2016) é possível identificarmos três fases nesse processo que antecedeu ao atual currículo australiano: 1) o desenvolvimento de objetivos nacionais no final dos anos de 1980; 2) as tentativas fracassadas de um currículo nacional nos anos 1990; e 3) as tentativas rejuvenescidas de consistência nacional nos anos 2000. Conclui-se que os vinte anos que antecederam à introdução do currículo nacional foram marcados por intensos debates.

Diante desse quadro, interessa-nos neste artigo explicitar mais especificamente o processo de construção do atual currículo nacional australiano instituído a partir da reforma de2012, identificando suas dinâmicas e seus fundamentos. Por fim, cabe destacar que a Austrália é um país em que as reformas de cunho neoliberal não só se tornaram pioneiras, como também vêm servindo de "exemplo" para muitos países, inclusive o Brasil.

II. Processo de Construção do Atual Currículo Nacional Australiano: Motivações Efundamentos

Não obstante, os primeiros passos em direção ao currículo nacional, ainda no governo Trabalhista Rudd/Gillard (2007-2013), foram dados com a criação em dezembro de 2007 do Conselho Nacional de Currículo, composto por representantes de cada um dos estados e territórios e três representantes dos setores das Escolas Católica e Independente. O Conselho tinha como tarefa desenvolver o primeiro currículo nacional da Austrália para as áreas de Inglês, Matemática, Ciências e História.

No "Acordo Nacional de Educação", assinado em janeiro de 2009, o governo federal, os estados e os territórios acordaram a implementação do currículo nacional. Nesse documento, estabeleceu-se que os três seriam incumbidos de desenvolver e manter o currículo juntamentecom o órgão responsável – naquele momento, o Conselho Nacional de Currículo –, cabendo aos estados e aos territórios a tarefa de sua implementação.

Em maio de 2009 o Conselho foi transformado na Autoridade Australiana de Currículo, Avaliação e Relatórios (ACARA), uma autoridade estatutária independente, criada por lei e composta por um Presidente, um Vice-Presidente, um representante do governo federal, um representante de cada estado e o Ministro da Educação dos territórios, um representante da Comissão Católica Nacional de Educação e um representante do Conselho das Escolas Independentes da Austrália. Conforme a lei de criação, a ACARA "deve desempenhar suas funções e exercer seus poderes de acordo com as instruções dadas pelo Conselho Ministerial". Entre as tarefas atribuídas a essa organização destaca-se a criação de um currículo nacional, do Programa Nacional de Avaliação de Alfabetização e Matemática (NAPLAN) e do Programa Nacional de Coleta e Geração de Dados, do *site My School* e do Instituto Australiano de Ensino e Liderança Escolar (AITSL), que desenvolveu os Padrões Profissionais Australianos para Professores.

A criação da ACARA foi um marco na política educacional australiana. Essa organização tem ainda hoje um papel fundamental no desenvolvimento do currículo australiano. Nesse processo, coube à ACARA desenvolver um Currículo Australiano dos anos iniciais[1] até o 12.º ano. Com sua atuação, pode-se verificar, por exemplo, um estreitamento das relações colaborativas entre os estados, os territórios e o governo federal. Esta perspectiva também foi observada por Savage (2016), ao afirmar que esta nova estrutura de governança "está gerando novas redes de políticas horizontais e intergovernamentais, que estão possibilitando a negociação e a transferência de ideias e práticas de políticas em todo o país de maneiras impossíveis nas décadas anteriores" (p. 843, tradução nossa). Por outro lado, o autor identificou a existência de sobreposições de políticas nos níveis estadual, federal e nacional, o

[1] A Educação infantil ou "O Kindergarten foi definido como o primeiro ano na escola, um termo que estava sendousado naquela época em New South Wales e no Território da Capital Australiana, e incluía os termos alternativos,usados em outros estados e territórios como 'Ano de Recepção' na Austrália do Sul, 'Pré-Primário' na Austrália Ocidental, 'Transição' no Território do Norte e 'Ano Preparatório' em Queensland, Victoria e Tasmânia. (Em outubro de 2010, a ACARA havia parado de usar o termo 'Jardim de Infância' e o substituiu por 'Fundação', queera um termo 'neutro' que não era usado em nenhum estado ou território)" (ROSE, 2015, p. 132).

© 2023 Global Journals

que, em sua avaliação, tem gerado confusão sobre os poderes e as responsabilidades dos governos relativas à política educacional. Para Savage (2016), todavia, a maior tensão refere- se às relações desiguais de poderes entre os estados e territórios, nas quais se evidencia um domínio da influência dos estados maiores, no caso Victoria e New South Wales[2], em relaçãoaos estados menores.

A *Declaração de Objetivos Educacionais de Melbourne para Jovens Australianos*, assinada em dezembro de 2008, é um desdobramento da *Declaração de Adelaide*[3] e ratifica o compromisso de cooperação entre o Ministério Federal da Educação e os Ministros da Educação, representando os seis estados e os dois territórios. Um plano de ação com previsão de quatro anos foi incluído em um documento complementar. A *Declaração de Melbourne* foi o documento orientador do processo de desenvolvimento do currículo, pois estabeleceu os objetivos e as metas educacionais para todos os jovens australianos: "Objetivos: 1) promover equidade e excelência; 2) tornar todos os jovens australianos aprendizes bem-sucedidos; indivíduos confiantes e criativos; e cidadãos ativos e informados" (AUSTRÁLIA, 2008, p. 7, tradução nossa).

Rose (2015) observa que nesse documento a equidade substitui a ideia de justiça socialque aparecia anteriormente na *Declaração de Adelaide.* A despeito da ambivalência do conceito de equidade, das contradições em torno deste debate, concordamos com a ideia de que o conceito de equidade é duplamente político, pois exige a definição de um projeto que busque a igualdade, ao mesmo tempo que reivindica uma posição sobre qual ideia de igualdade deve orientar esse projeto (LOPÉZ, 2005). No entanto, a cooptação do ideal de equidade pela racionalidade econômica e pelos interesses do mercado produziu uma lógica reducionista que intensificou a mercantilização no espaço educacional australiano, pois passou a privilegiar o diagnóstico do sistema de ensino a partir dos resultados nas avaliações de larga escala e a condicionar a distribuição dos recursos econômicos aos resultados do desempenho dos estudantes e da escola nesses testes. Conforme afirma Savage, Sellar e Gorur, (2013), a equidade educacional e a competitividade econômica são apresentadas de forma harmoniosa e complementar nos discursos das políticas educacionais.

Voltando ao processo de construção do currículo nacional na Austrália, a *Declaração de Melbourne* enfatiza a importância do conhecimento, das habilidades e da compreensão das disciplinas, das competências gerais e das prioridades transversais como base de um currículo desenhado para garantir o aprendizado no século XXI (ACARA, 2012a). É interessante notar que, citando a *Declaração de Melbourne,* o documento afirma reconhecer as mudanças globaisque impõem novas demandas para a educação na Austrália, tais como: a) a integração global e a mobilidade internacional; b) o crescimento das nações asiáticas e, por conseguinte, o necessário conhecimento sobre a Ásia; c) a globalização e as mudanças tecnológicas; d) as pressões ambientais, sociais e econômicas; e) os avanços rápidos e contínuos nas tecnologias de informação e comunicação (ACARA, 2012a, p. 06).

Em nossa análise, as demandas aqui citadas explicitam a influência do processo de globalização e a preocupação australiana com a capacidade de competir na economia global. De maneira similar, Reid (2009) assinalou que, apesar de ter colocado a equidade em primeiro plano, um importante avanço em sua opinião, o imperativo econômico foi o maior impulsionador da reforma australiana.

> Embora a Declaração de Melbourne sobre Metas Educacionais para Jovens Australianos ... contenha uma visão muito mais ampla dos propósitos da educação, a retórica pública do governo Rudd e muitas de suas estratégias limitam a visão da revolução educacional a ver os estudantes como capital humano (potencial) para se alistar na causa darecuperação econômica e crescimento. Tal postura marginaliza os aspectos culturais, sociais, políticos e relacionais da educação. Entende os estudantes como potenciais trabalhadores e consumidores, e não como cidadãos locais e globais (p. 9, tradução nossa).

O processo de criação do currículo australiano certamente tem relação com as influências dos organismos internacionais e, por conseguinte, com as demandas da organizaçãoda sociedade capitalista em seu atual estágio de desenvolvimento. A despeito dessas influências, para a maioria dos participantes do estudo de Kunhi (2019)[4], o alinhamento do currículo australiano com as orientações e recomendações da OCDE – no caso, o "currículo para o século 21" –[5],

[2] A Austrália tem seis estados: New South Wales (NSW), Queensland (QLD), Northern Territory (NT), Western Australia (WA), South Australia (SA), Victoria (VIC); e dois territórios continentais: Australian Capital Territory(ACT) e Tasmania (TAS). Na maioria dos aspectos, esses dois territórios funcionam como estados, exceto que o Parlamento tem sobre eles o poder de modificar ou revogar qualquer legislação aprovada pelos parlamentos territoriais. (SANTOS e ZAN, 2022)

[3] A *Declaração de Adelaide sobre os Objetivos Nacionais para a Escolaridade no século 21*, elaborada em abrilde 1999 pelo Conselho Ministerial de Educação, Emprego, Treinamento e Assuntos da Juventude – MCEETYA (sigla em inglês), é descrita por diferentes estudos como um dos marcos iniciais do atual currículo australiano.

[4] Estudo sobre a produção e implementação da política curricular na Austrália, mais especificamente do denominado "Currículo para o século 21"; entre outros achados, a autora destaca alguns elementos que motivaram/mobilizaram a reforma do currículo na Austrália.

[5] Conforme Halasz & Michel (2011), um 'currículo para o Século 21' reflete um forte discurso global, mobilizado pela OCDE a partir de 2003, segundo o qual o "currículo para o século 21" refere-se às competências necessáriasna formação dos jovens do Século 21.

© 2023 Global Journals

poderia melhorar a posição da Austrália nos *rankings* dos testes internacionais. Conforme a autora, acreditava-se também que uma boa posição na tabela classificatória do PISA poderia validar não apenas o sistema educacional, mas também a economia do país em escala global. É importante destacar que, mesmo permanecendo acima da pontuação média da OCDE, o desempenho dos estudantes australianos nas avaliações do PISA estava baixando desde o primeiro teste realizado em 2000. A pontuação dos estudantes australianos em Leitura caiu de 528 pontos, em 2000, para 503, em 2015; em Matemática a pontuação caiu de 524 pontos, em 2003, para 494 pontos, em 2015. (AUSTRÁLIA, 2017-2018).

Como identificado nas pesquisas analisadas, o exame dos documentos oficiais evidencia a presença de discursos pautados nos ideais de concorrência, eficiência, qualidade e padronização, que são marcas do discurso neoliberal. Destaca-se também, no caso australiano, a identificação do currículo como elemento importante para competitividade econômica, seguindo a lógica do "capital humano" e da mercantilização do conhecimento. Nesta perspectiva, o conhecimento, especialmente nas áreas de ciência, tecnologia, engenharia e matemática, é entendido como essencial para o desenvolvimento econômico. As citações seguintes referem-se respectivamente à *Declaração de Melbourne* e ao *Donnelly-Wiltshire Review – Revisão Donnelly-Wiltshire*, que veremos adiante.

> No século 21, a capacidade da Austrália de fornecer uma alta qualidadede vida para todos dependerá da capacidade de competir na economia global por conhecimento e inovação. A educação equipa os jovens com o conhecimento, a compreensão, as habilidades e os valores para aproveitar as oportunidades e enfrentar os desafios desta época com confiança. (AUSTRÁLIA, 2008, p. 4, tradução nossa)

> Dentro do currículo australiano, o objetivo da educação é tornar a economia australiana mais eficiente e produtiva, ensinando habilidades e competências relacionadas ao trabalho (AUSTRÁLIA, 2014, p. 28, tradução nossa).

O professor Reid (2009) fez uma contundente crítica ao processo de desenvolvimento do currículo nacional australiano, salientando contrassensos relativos à proposta de construção desse documento, entre eles: a desconexão entre os objetivos e as metas declarados; a repetição do "currículo do passado"; a falta de quadro conceitual coerente; a falta de compreensão das questões de equidade e currículo, dentre outras. Nas palavras do autor:

> Na minha opinião, a agenda da educação nacional é muito díspar, com suas partes componentes desconectadas ou pelo menos inconsistentes,uma com a outra. No entanto, há muito que vale a pena sobre a agendae não é tarde demais para construir sobre o que foi alcançado através do desenvolvimento de uma narrativa geral para a "revolução", que se baseia na melhor evidência e prática de pesquisa, intimamente envolvea profissão em seu desenvolvimento e evita estratégias antiquadas. Uma genuína revolução educativa buscará no futuro não as certezas do passado. (REID, 2009, p. 23, tradução nossa)

Scarini (2018), por sua vez, reconhece que em todo processo de construção curricular é necessário um grande esforço político para alcançar um mínimo de consenso. Contudo, em sua opinião, é preciso questionar se no caso australiano o processo político não teria ofuscadoo debate sobre as bases conceituais que deveriam sustentar o currículo e as consequências da ausência dessas discussões para efetivação do currículo nas escolas. A autora afirma desconhecer, por exemplo, a existência de um processo de discussão sobre o conceito de aprendizagem; sobre o perfil dos estudantes, suas histórias de vidas e conhecimentos prévios; sobre as noções de saber e conhecimento, isto é, sobre a natureza do conhecimento; sobre a visão do currículo como um todo e sobre o processo de desenvolvimento, consulta e consenso em torno do currículo. Desse modo, uma forte base conceitual é indispensável para toda reforma curricular que se pretenda duradoura e consistente, uma vez que, "abre espaço para o trabalho intelectual de compreensão, discussão, contestação e conceptualização sobre questõesfundamentais para educação" (SCARINI, 2018, p. 27, tradução nossa).

Observamos, também, que no processo de construção do currículo australiano, outras experiências internacionais foram tomadas como modelos. Durante a consulta sobre o esboço do Currículo Australiano, a ACARA realizou um processo de mapeamento a partir de comparações internacionais, que envolveu uma análise de semelhanças e diferenças entre o Currículo Australiano e os currículos internacionais em Inglês, Matemática e Ciências. Os países selecionados para comparação foram Canadá (Ontário) e Nova Zelândia para a área de Inglês; Singapura e Finlândia para Matemática; e Canadá (Ontário) e Finlândia para Ciência. Os critérios e os resultados desse mapeamento foram organizados no documento chamado *Projeto de Mapeamento Curricular – Comparando os currículos internacionais com o currículo australiano*[6]. O desejo de um currículo de "nível mundial" fica expresso no documento *The Shape of the Australian Curriculum: Version 4.0 – O formato do Currículo Australiano Versão 4.0* – na seção "Para um currículo australiano de nível mundial", onde se pode confirmar que o currículo australiano "foi comparado com os currículos dos *principais países* durante o processo de desenvolvimento" (ACARA, 2012a, p. 28, grifos nossos).

6

© 2023 Global Journals

O desenvolvimento de construção do currículo na Austrália foi organizado em quatro etapas, a saber: 1) definição do formato do currículo; modelagem; 2) redação do currículo; 3) preparação para implementação; 4) monitoramento, avaliação e revisão do currículo. Inicialmente o processo previa o desenvolvimento do currículo para áreas ou disciplinas de Inglês, Matemática, Ciência e História. Segundo Reid (2018), não existiu uma justificativa para a escolha inicial dessas áreas ou disciplinas, nem tampouco indicação de quando os outros conteúdos curriculares seriam incluídos, o que gerou uma tensão entre os profissionais representantes dos outros conteúdos curriculares, que passaram a reivindicar espaço no novo currículo nacional. Desse modo, uma segunda fase foi autorizada e envolveu o desenvolvimento do currículo de Geografia, Línguas e Artes; em um terceiro momento foram incluídos: Saúde e Educação Física, Tecnologia da Informação e Comunicação – TIC –, *Design* e Tecnologia, Economia, Negócios e Civismo e Cidadania.

Segundo a ACARA (2012b, p. 06), "o processo de desenvolvimento do Currículo Australiano foi pensado com o objetivo de gerar amplo engajamento, debate e participação nas decisões sobre sua forma e seu conteúdo". Diferentes grupos e representações estavam envolvidos no trabalho: Conselho Permanente da Primeira Infância e da Educação Escolar (SCSEEC); Comitê de Altos Funcionários para Assuntos da Juventude; Desenvolvimento da Primeira Infância e Educação Australiana (AEEYSOC); Conselho da ACARA; Grupo Curricular da ACARA; Grupo de Referência dos Currículos anos iniciais até o 12.° ano; Redator-chefe; Redatores de currículo; Grupos de consulta por disciplina; Grupos de consulta entre as áreas de conhecimento e outros grupos de consulta e grupos de trabalho. Com relação aos espaços de consulta e participação, constam: Painéis nacionais; Fóruns nacionais; Fórum dos diretores curriculares; Escolas de participação intensiva. O papel e a responsabilidade de cada grupo ou representação, bem como as características dos espaços de participação e consulta, estão disponíveis no documento *Processo de desenvolvimento do Currículo Versão 6*, traduzido para português.

Inicialmente foram lançados seis painéis consultivos de currículo, a saber: Inglês, Matemática, Ciências, História, equidade e diversidade e estágios de escolaridade. A inclusão das temáticas da equidade e da diversidade resultou de demandas do extinto Conselho Nacional de Currículo, com base no princípio de que todas as crianças importam. Chama-nos a atenção o debate em torno do lugar da História no currículo. Para Macintyre (2009, [s.p.]), enquanto alguns defendiam esta disciplina como de aprendizagem fundamental, outros atribuíam a ela um "status marginal" ao conteúdo, que "é oferecido em algumas escolas, mas não em outras", sob o argumento de que seria preferível incluir os conhecimentos de História no Estudo da Sociedade e do Meio Ambiente. Segundo o autor, verificou-se uma diminuição nas matrículas nas disciplinas nos anos 11 e 12, exceto no estado de New South Wales, em que esta é uma disciplina obrigatória. Ainda sobre esse debate, Rose afirma que

> o ensino da História e o lugar da História nos currículos escolares foram ainda mais erodidos pela interferência dos políticos. Enquanto os políticos raramente expressam uma opinião sobre o que deveria ser ensinado em Matemática ou Ciência, e ocasionalmente o faziam com o inglês (particularmente no que diz respeito ao ensino de fonética), a História, por outro lado, parecia ser um jogo justo (ROSE, 2015 ou 2015, p. 136, tradução nossa).

Após o processo de consultoria, o primeiro esboço do currículo para as áreas de Inglês, Matemática, Ciências e História para os anos iniciais até o 10° ano foi disponibilizado *on-line* para um período de consulta pública que ocorreu durante 10 semanas, de março até o final de maio de 2010. Segundo a ACARA (2014), foram encaminhadas 821 respostas *on-line* para o documento de Inglês, 793 para Matemática, 555 para Ciência e 582 para História. Nesta etapa das críticas que foram feitas, ressalta-se o curto prazo para consulta. Para citar um exemplo, Reid (2009) avalia que os cronogramas para consulta e implementação não permitiram um amplo debate, especialmente entre os professores.

> Dada a variedade de questões não resolvidas "[...], a rapidez e a limitada extensão dos processos de consulta e implementação são preocupantes. A consulta para os enquadramentos de documentos produziu um pequeno número de respostas. Por exemplo, havia 82 apresentações escritas para o History Framing Paper e apenas 220 respostas da pesquisa" (NCB, 2009c, p. 17). Embora algumas destas respostas sejam de Associações que representam muitos professores, esta ainda é uma taxa de resposta muito baixa dos 250.000 professores do país e lança algumas dúvidas sobre o nível de envolvimento da profissão com o processo (REID, 2009, p. 18, tradução nossa).

Por fim, cada esboço de área ou disciplina foi revisado e publicado com o endosso do Conselho Ministerial.

Inicialmente o processo de implementação do novo currículo foi previsto para começar em 2011, no entanto, estendeu-se o prazo para até dois anos. Existia um entendimento de que a natureza e o momento de implementação dependiam dos estados e das escolas individualmente, desde que houvesse um processo substancial de implementação em todas as escolas até o final de 2013 (MCGAW, 2010).

III. Processo de Implementação do Novo Currículo

De fato, o processo de implementação do novo currículo só se iniciou em 2012. É interessante registrar

© 2023 Global Journals

que existiram diferentes calendários para sua implementação nos diversos estados e territórios, o que também aconteceu com relação às áreas e disciplinas e com as abordagens e os formatos pedagógicos. Essa variação no processo de implementação resultou da influência de fatores como a adesão e a iniciativa dos sistemas escolares e a disponibilidade de recursos. Rose (2015 ou 2019?, p. 147, tradução nossa) nos fornece alguns exemplos:

> [...] o Currículo Australiano em História foi introduzido em escolas secundárias no ACT em 2011, mas não em escolas primárias até 2012. As escolas Católicas da Tasmânia implementaram História em 2012, mas o setor Independente e Governo foi um ano depois em 2013. O currículo de História também foi implementado em 2013 nas escolas no Território do Norte, Victoria, Queensland e Austrália Ocidental, enquanto na Austrália do Sul, as escolas primárias e católicas do governo implementaram este currículo, mas apenas algumas Escolas Independentes o fizeram. Escolas secundárias do sul da Austrália introduziram isso em 2014 nos anos 8 e 9. New South Wales deve permitir implementação opcional em escolas primárias em 2015 com implementação completa em 2016, enquanto para o setor secundário, vão implementar o de História, nos anos 7-9, em 2014 e nos anos 8-10 em 2015.

Neste ínterim, com a vitória da coalizão que elegeu o Partido Liberal, em setembro de 2013, o debate em torno do novo currículo nacional se caracterizou por tensões políticas e ideológicas. Em janeiro de 2014, em pleno processo de implementação, a ministra da Educação indicada pela coalizão liberal eleita, encomendou uma revisão do currículo, chamada de *Revisão de Donnelly-Wiltshire*[7], nome dos dois revisores escolhidos para produzir o documento.

Por outro lado, o anúncio de uma revisão apressada sem sólidas justificativas enquanto as escolas e os professores ainda estavam no processo de apropriação do novo currículo e do ajustamento das quatro primeiras áreas ou disciplinas (Matemática, Inglês, Ciências e História) e ainda se preparavam para execução das outras, gerou frustrações e desconfianças. Tais sentimentos foram alimentados também pela afiliação à ideologia conservadora das revisões e dos especialistas nomeados para realizar as avaliações das áreas de aprendizagem que se confirmaram com a publicação do documento da revisão em outubro de 2014, após o habitual processo de consulta.

Em que pese a continuidade da política elaborada a partir de 2008 no governo trabalhista, a *Revisão de Donnelly-Wiltshire* (2014) é um documento bastante interessante porque assimila de forma explícita a nova conjuntura política e ideológica. O documento diverge da *Declaração de Melbourne* (2008) em pontos importantes referentes aos princípios, aos objetivos e aos conhecimentos selecionados. Só para exemplificar, a *Revisão de Donnelly-Wiltshire* inicia argumentando que o *Currículo Australiano* não prestou atenção suficiente ao impacto da civilização ocidental e da cultura judaico-cristã no desenvolvimento da Austrália, em suas instituições, ou seja, na sociedade australiana e em sua cultura geral. O texto da *Declaração de Melbourne*, por outro lado, evoca o respeito à diversidade social, cultural e religiosa, especialmente em relação à história e à cultura dos povos aborígines e dos povos das Ilhas do Estreito de Torres e da relação da Austrália com a Ásia. Os autores da revisão atribuem adjetivos como "simplista" e "politizado" ao currículo australiano. Outro ponto de divergência é a perspectiva curricular para o século 21 adotada pela *Declaração de Melbourne*: o tom adotado na *Revisão Donnelly-Wiltshire* em relação ao "currículo para o século 21" foi de ceticismo e crítica[8].

O documento é mais contundente com relação à comparação com modelos internacionais, ou melhor, a comparação com os países com contexto semelhante ao da Austrália — o caso da língua Inglesa, por exemplo —, que apresentam bom desempenho em testes internacionais. Nesse sentido, a Inglaterra foi tomada como um modelo de referência, dentre outras razões, pela similaridade entre a Austrália e o contexto inglês, conforme o texto:

> Como um elemento-chave desta revisão, foi realizada uma pesquisa abrangente sobre a experiência internacional, *especialmente em relação aos sistemas de alto desempenho e aqueles com um contexto semelhante ao da Austrália* (grifos nossos). Isso incluiu entrevistas com funcionários-chave da OCDE em Paris e entrevistas em Londres com uma série de especialistas e funcionários envolvidos com a recente revisão do currículo na Inglaterra (AUSTRÁLIA, 2014, p. 32, tradução nossa).

Para Savage (2016), por trás desse processo também estava a evidente preferência do governo liberal por um "modelo mais coordenado de federalismo", com definições mais claras das responsabilidades entre os governos federal e estaduais; o objetivo seria garantir tanto quanto possível a soberania dos estados e territórios. Além disso, entre as propostas de revisão apresentadas pelo novo governo, colocaram-se em discussão a estrutura e o papel da ACARA, retratada como ineficiente, obscura, esbanjadora de recursos e autoritária. Como recomendação, a revisão sugeriu a reconstrução da ACARA como uma empresa independente e distante do

[7] Kevin Donnelly era pesquisador sênior da Católica Australiana Universidade, em 2004, ele era o chefe de gabinete do Partido Liberal. Ken Wiltshire ocupou uma posição acadêmica na Universidade de Queensland Business School e mostrou apoio ao governo de coalizão que elegeu o Partido Liberal em 2013. (KUNH, 2019 p. 11, tradução nossa)

[8] Para saber mais, ver Kunh (2019).

© 2023 Global Journals

ministro da Educação e dos departamentos de educação.

Em 2015 o Conselho de Educação encaminhou as propostas, e a ACARA considerou as 30 recomendações. Conforme Reid (2018), ocorrem mudanças no texto de algumas áreas e disciplinas. Entre as mudanças, destacam-se o "aumento da presença de fonética e a 'desmotivação' do currículo, combinando história, geografia, educação cívica e de cidadania e economia e negócios em um assunto nos primeiros anos a ser chamado de humanidades e ciências sociais" (REID, 2018, p. 14, tradução nossa). Contudo, para o autor, a ACARA e o Conselho Educacional ignoraram a grande maioria das recomendações da revisão. Em suas palavras, "todo o processo – de revisão – é uma história paralela na jornada rumo ao primeiro currículo nacional da Austrália" (p.14, tradução nossa). Mesmo assim, tratou-se de exercício político e não educacional dado o momento inapropriado, ainda no processo de implementação,e a filiação ideológica dos revisores que já indicavam de antemão um resultado em desacordo com as orientações da ACARA.

Porquanto o processo de implementação e monitoramento do currículo nacional continuassem em andamento, a próxima revisão do currículo australiano estava prevista para 2020. De acordo com Reid (2018), todavia, o entusiasmo é menor, posto que, em muitos estados — ele cita Victoria e New South Wales em particular — a abordagem nacional vem sendo diluída e/ ou adaptada aos currículos locais.

A partir da provocação do autor, verificamos que o estado de New South Wales, em 2019 ainda estava em processo de implementação do currículo nas escolas. A área de aprendizagem de Inglês e Matemática para o Secundário Sênior, anos 11 e 12, oi implementada apenas em 2017; Ciências para os anos 7 ao 10, em 2018; na área de Sociedade humana e seu ambiente, o componente Geografia estava em processo de incorporação em 2019, já no caso da área de Artes criativas, o processo de incorporação ainda estava para acontecer. Ver Tabela1.

Tabela 1: Implementação do Currículo Nacional no Estado de NSW

Currículo Australiano Área(disciplina)/Ano	Ano da publicação do programa NSW, que incorpora o conteúdo do currículo australiano
Matemática (F – 10)	2012
Matemática Essencial (Secundário Sênior)	2017
Matemática Geral (Secundária Sênior)	2017
Métodos Matemáticos (Secundário Sênior)	2017
Especialista em Matemática (SecundárioSênior)	2017
Inglês (F – 10)	2012
Inglês (Secundário Sênior)	2017
Inglês como idioma ou dialeto adicional(ensino médio)	2017
Inglês Essencial (Secundário Sênior)	2017
Literatura (Secundário Sênior)	2017
Ciências Humanas e Sociais (F–6/7)História (7–10)	2012
Economia e negócios (7-10)Educação cívica e cidadania (7-10)	2015
Estudos do Trabalho (7–10)	2019
História Antiga (Secundária Sênior)	2017
Geografia (Secundário Sênior)	Atualmente em desenvolvimento
História Moderna (Secundária Sênior)	2017
Artes-Dança, Drama, Media Arts, Música eArtes Visuais (F – 6)	Atualmente em desenvolvimento
Artes - Dança (7-10)	O desenvolvimento ainda está para ocorrer
Artes - Drama (7-10)	O desenvolvimento ainda está para ocorrer
Artes - Música (7-10)	O desenvolvimento ainda está para ocorrer
Artes - Música (7-10)	O desenvolvimento ainda está para ocorrer

Fonte: (NSW, 2020.).

© 2023 Global Journals

Os dados sobre todas as Áreas ou disciplinas estão disponíveis em: https://educationstandards.nsw.edu.au[9]. A letra F (Fundação/foundation) deu lugar ao termo 'Jardim de Infância' em outubro de 2010. Nesta pesquisa o termo foi traduzido para Educação Infantil. Dados atualizados em dezembro de 2022, conforme informações do *site*.

Diante desse quadro, surgiram várias questões que, embora estejam além do escopo deste estudo, evocam novas pesquisas que se relacionam principalmente com a questão apresentada pelo professor Reid (2018) sobre a existência de um currículo nacional ou de diversos currículos com algumas características em comum. "Se a Austrália tem um currículonacional ou uma diversidade de currículos oficiais com algumas características comuns" (p. 15, tradução nossa), é, segundo o autor, uma questão que merece ser explorada com cuidado.

IV. A Organização Curricular

Como exposto, a ACARA é responsável pelo desenvolvimento do currículo nacional, mas a implementação do currículo australiano, incluindo as horas de ensino[10], está sob a autoridade de cada jurisdição estadual ou território. De modo geral, o governo federal australiano apoia a implementação do currículo australiano fornecendo projetos e programas direcionados e alinhados ao currículo nacional. A título de ilustração a Quadro 1 descreve a organização do sistema de ensino da Australia.

Quadro 1: A formação escolar na Austrália

Nível escolar	Duração	Anos
Educação primária, incluindoum ano anterior ao 1º ano	sete ou oitoanos	começando no Jardim da Infância/Preparatório até o Ano 6 ou 7
Educação secundária	Três ou quatro anos	Do Ano 7 ao 10*
Educação secundária sênior	Dois anos	Anos 11 e 12

Fonte: Elaboração própria, com informações de ACARA/Dados
**No Estado da Austrália do Sul a Educação secundária começa no Ano 8*

Dos anos iniciais – Educação Infantil – ao ano 10, o atual Currículo Nacional Australiano está organizado em três eixos:

1) *As áreas de conhecimento:* disciplinas – Inglês, Matemática, Ciências, Saúde e Educação Física, Artes, Humanidades e Ciências Sociais – que compreendem História e Geografia.

> O conhecimento disciplinar, as habilidades e compreensão são descritos nas oito áreas de aprendizado. Em cada área ou assunto de aprendizagem, as descrições de conteúdo especificam o que os jovens aprenderão, e os padrões de desempenho descrevem a profundidade doentendimento e a sofisticação do conhecimento e da habilidade esperados dos alunos no final de cada ano ou faixa de anos. As últimas quatro áreas de aprendizagem: Artes, Tecnologia, Saúde e Educação Física e Idiomas foram escritas para incluir várias disciplinas, refletindo costumes e práticas na disciplina (ACARA/Australian Curriculum, 2019, tradução nossa).

2) *Capacidades gerais:* Letramento, Alfabetização matemática, Capacidade em tecnologia da informação e da comunicação (TIC), Pensamento crítico e criativo, Capacidade social e pessoal, Comportamento ético e Entendimento intercultural.

> As competências gerais compreendem um conjunto integrado e interconectado de conhecimentos, habilidades, comportamentos e disposições que os alunos desenvolvem e usam em sua aprendizagem através do currículo. São tratadas por meio das áreas de conhecimento e são identificadas sempre que são desenvolvidas ou aplicadas em descrições de conteúdo. Também são identificadas onde oferecem oportunidades para acrescentar profundidade ou riqueza à aprendizagem do aluno em elaborações do conteúdo. (ACARA/Australian Curriculum, 2019, tradução nossa)

3) *Três Prioridades Transversais:* a) Histórias e culturas dos aborígenes e dos nativosdo estreito de Torres; b) Ásia e o engajamento da Austrália com a Ásia; c) Sustentabilidade. "As prioridades transversais estão representadas em todas as áreas de conhecimento/disciplinas. Terão uma presença variável, mas forte, dependendo de sua relevância nas áreas de conhecimento" (ACARA/Australian Curriculum, 2019, tradução nossa).

[9] *Link* completo para os dados: https://educationstandards.nsw.edu.au/wps/portal/nesa/k-10/understanding-the-curriculum/curriculum-syllabuses-NSW/nsw-and-the-australian-curriculum

[10] O documento *Curriculum Design Paper* (*Documento sobre o desenho do currículo*) de 2013, apresenta as Áreas de aprendizagem ou disciplinas para os relatores, um indicativo das (horas) que orientou a elaboração do currículonacional.

© 2023 Global Journals

O Quadro 2 ilustra essa organização:

Quadro 2: Estrutura e elementos do Currículo Australiano da Educação Infantil ao ano 10

Áreas de aprendizagem Disciplinas	Disciplinas Secundárias
Inglês	Inglês como idioma ou dialeto adicional, inglês essenciale literatura.
Matemática	Matemática Essencial, Matemática Geral, Métodos Matemáticos, Matemática Especializada.
Ciências	Biologia, Química, Ciências da Terra e do Ambiente e Física.
Ciências Humanas	Educação Infantil - 6/7 Ciências Humanas e Sociais, 7-10 Cívica e Cidadania, 7-10 Economia e Negócios, 7-10 Geografia e 7-10 História*.
Artes	Dança, Teatro, Artes Midiáticas, Música e Artes Visuais
Tecnologia	*Design* e Tecnologias e Tecnologias Digitais
Saúde e Educação Física	Saúde Pessoal, Social e Comunitária e Movimento e Atividade Física
Idiomas	Estrutura para as línguas aborígines e as línguas das ilhas do Estreito de Torres, Francês, Alemão, Italiano, Indonésio, Japonês, Coreano, Grego, Turco, entre outros.

Fonte: Elaboração própria, com informações de ACARA/Australian Curriculum (2019).
** Os números referem-se ao ano escolar da oferta.*

Conforme documentos da ACARA, nos anos 9 e 10 a aprendizagem em todo o currículoprepara os alunos para atividades cívicas e sociais e para participação econômica fora da escola.Os alunos têm a oportunidade de fazer escolhas sobre o aprendizado e especializar-se em áreas que lhes interessam. Ainda segundo a instituição, nesse ponto, os alunos reúnem seus conhecimentos e experiências para considerar possíveis caminhos para o estudo no secundário sênior (que se aproxima do Ensino Médio no Brasil) e na educação profissional. Nos anos 9 e 10 o currículo inclui um componente opcional denominado *Estudos do trabalho* que, segundo o documento oficial, visa garantir desenvolvimento do "conhecimento do mundo do trabalho e a importância das capacidades de aprendizagem ao longo da vida para gerenciar carreiras, mudanças e transições em um futuro incerto e em mudança" (AUSTRALIAN CURRICULUM, 2019, tradução nossa). Além disso, nos Anos 9 e 10 os alunos têm a oportunidade de especializar-se em assuntos de seu próprio interesse, a partir de um conjunto de disciplinasopcionais.

A título de ilustração, apresentaremos a seguir a organização do currículo no estado de New South Wales, o estado que possui o maior número de estudantes. Como segue:

- A maioria das escolas primárias de New South Wales segue um *continuum* baseado em estágios de aprendizado:

  Fase 1: Educação infantil/Jardim de Infância Etapa 1: Anos 1 e 2

  Etapa 2: Anos 3 e 4

  Etapa 3: Anos 5 e 6.

- Na maioria das escolas secundárias, os estágios de aprendizagem são:Etapa 4: Anos 7 e 8

  Etapa 5: Anos 9 e 10

  Etapa 6: Anos 11 (Preliminar) e 12 (Certificado de Ensino Superior, ou 'HSC'). No Quadro 2 estão apresentados os conteúdos ano a ano:

Quadro 3: Conteúdos por ano

Anos	Conteúdos
Educação Infantil ao ano 6	Inglês, Matemática, Ciência e Tecnologia, Sociedade humana e seu ambiente - HSIE (História e Geografia), Artes Criativas,PDHPE (Desenvolvimento Pessoal, Saúde e Educação Física)e programas de idiomas.
Ano 7 ao ano 12	Inglês, Matemática, Ciência, Tecnologia, Sociedade humana eseu ambiente - HSIE, Artes Criativas, PDHPE (Desenvolvimento Pessoal, Saúde e Educação Física), programas de idiomas e Educação e treinamento vocacional - VET[11].

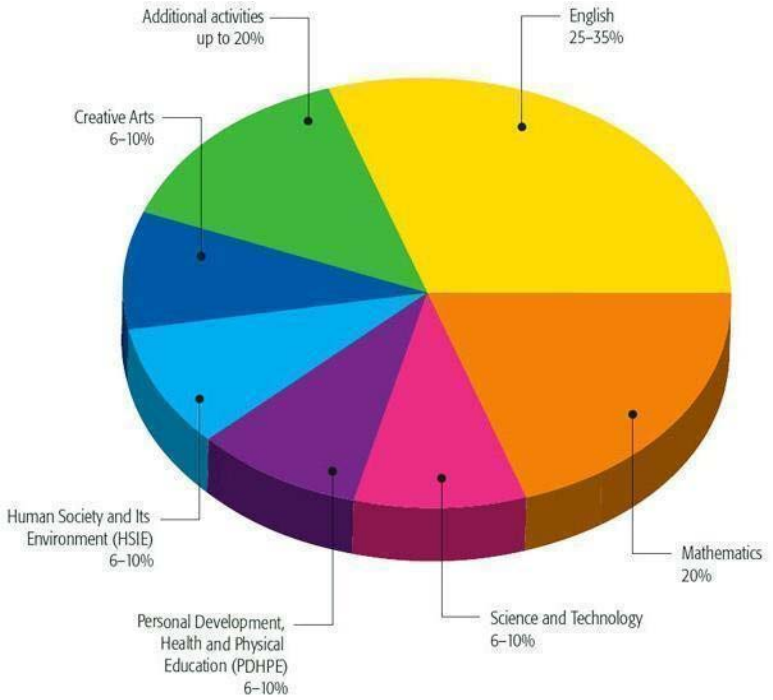
Fonte: NSW, 2020.

[11] Também pode ser traduzido como "Educação e formação profissional".

© 2023 Global Journals

A implementação de um programa de idiomas é opcional na escola primária – Educação Infantil ao ano 6.

A Autoridade Curricular de NSW fornece um guia para alocações do tempo que as escolas devem usar de acordo com suas próprias políticas, mas respeitando as orientações da NESA.



Fonte: NSW, 2020

Figura 1: Guia para alocações do tempo até o ano 6

Legenda:

6-10% é de aproximadamente 1,5 a 2,5 horas em uma semana típica de ensino.

Inglês: 25-35% do tempo

Matemática: 20% do tempo

Ciência e Tecnologias: 6-10% do tempo

Desenvolvimento Pessoal Saúde e Educação Física: -10% do tempo

Sociedade Humana e seu Meio Ambiente: 6-10% do tempo

Artes Criativas: 6-10% do tempo

Atividades Adicionais: 6-10% do tempo

O estado de NSW estabelece conteúdos obrigatórios do currículo, conforme listados abaixo:

- Estudo da matemática é obrigatório, do jardim de infância ao ano 10.
- Estudo de Inglês é obrigatório do jardim de infância ao ano 12.
- Artes criativas é disciplina obrigatória para alunos do jardim de infância ao ano 6.
- Na sociedade humana e seu ambiente (HSIE), os assuntos de história e geografia são obrigatórios, do jardim de infância ao ano 10, onde os alunos estudam conceitos e habilidades históricas e geográficas específicas.

© 2023 Global Journals

- A ciência e a tecnologia são obrigatórias para todos os alunos, do jardim de infância ao ano 6.

a) Ensino secundário sênior

O currículo do Anos 11-12, ensino secundário sênior, é organizado em 8 áreas de aprendizagem: Inglês, Matemática, Ciências, História e Geografia, distribuídas em 15 disciplinas denominadas de secundárias. Assim nos revela o Quadro 3:

Quadro 3: Áreas de aprendizagens e disciplinas

Área de aprendizagem/Disciplina	Disciplinas Secundárias
Inglês	1. Inglês 2. Inglês com Língua Adicional ou Dialeto 3. Inglês Essencial 4. Literatura
Ciências Humanas e Sociais	5. História Antiga 6. Geografia 7. História Moderna
Matemática	8. Matemática Essencial 9. Matemática Geral 10. Métodos Matemáticos 11. Matemática Especialista
Ciência	12. Química 13. Biologia 14. Terra e Ciências Ambientais Física

Fonte: ACARA/Australian Curriculum ou Australia (data)?

No Currículo do Ensino Secundário Sênior, anos 11 e 12, as 15 disciplinas secundárias são organizadas em 4 unidades, sendo que as 2 unidades finais são projetadas para terem um nível de dificuldade maior em termos de desenvolvimento do que as 2 primeiras: 1 unidade é um componente do conteúdo que pode ser ensinado em cerca de metade do ano escolar (50-60 horas), incluindo avaliações e exames. Os estados e os territórios determinam a organização das disciplinas e a forma como os conteúdos e os padrões de desempenho são integrados.

A Educação Profissional ou Educação e Treinamento Vocacional – VET – é incluída nos programas de Certificado de Ensino Secundário Sênior. Os estudantes podem optar pela educação profissional, como parte de um Certificado Secundário Sênior, e sua conclusão fornece crédito para outras certificações dentro da Estrutura de Qualificações Australiana (AQF). Segundo o documento *Visão Geral do Secundário Sênior* (*Senior secondary overview*), além de obter o certificado de Ensino Médio, o acesso ao VET durante este nível de ensino oferece aos alunos oportunidades de obter uma qualificação profissional reconhecida pelo setor produtivo ou um progresso substancial para conseguir uma. O treinamento vocacional durante o Ensino Médio possibilita, segundo os documentos examinados, uma diversidade de oportunidades pós-escolares.

A Estrutura Australiana de Qualificação (AQF) foi criada em 1995 e agrega todas as qualificações do setor de ensino superior (ensino superior e ensino e treinamento vocacional). Entre os objetivos da AQF destacam-se a unificação da formação profissional e da certificação profissional em todo o território nacional, facilitando não apenas as transferências, mas também a elevação do nível de formação (AUSTRALIAN QUALIFICATIONS FRAMEWORK, 2013).

O currículo prevê uma flexibilidade para que os alunos se movimentem entre as disciplinas. Todavia, a flexibilidade de escolha dos alunos é regulamentada pelas escolas, pelas autoridades e pelas agências curriculares de cada estado e território, incluindo aconselhamento sobre pontos de entrada e saída e crédito para o estudo concluído (AUSTRALIAN CURRICULUM, 2019, tradução nossa)[9].

Além disso, os estados e os territórios determinam as especificações da avaliação que concede uma certificação aos estudantes que concluem o Ensino Médio com êxito, o Certificado de Ensino Secundário Sênior. Cada Autoridade Curricular estabelece um conjunto de disciplinas necessárias para certificação, devendo incluir ou adaptar as disciplinas estabelecidas no Currículo Nacional.

O Estado de Queensland é o que oferece a maior flexibilidade curricular nos anos 11 e 12. Os alunos podem escolher entre disciplinas acadêmicas, disciplinas e cursos de formação profissional, incluindo

[12] Disponível em: https://www.australiancurriculum.edu.au/media 36 27/ss_info-sheet_overview.pdf

© 2023 Global Journals

estágios e aprendizados, estudos reconhecidos e disciplinas universitárias realizadas na escola.

Em síntese, na Austrália as escolas públicas são reguladas pelos estados que determinam o salário e as condições dos professores, monitoram o desempenho das escolas e, nos casos de NSW e Victoria, desenvolvem seu próprio currículo – em tese, alinhado ao currículo nacional. No que tange às escolas privadas, os ministros estaduais têm poder limitado, posto que estas tomam suas próprias decisões sobre quem contratar e como ensinar.

É importante destacar que, conforme previsão, o currículo nacional foi revisado: segundo informação no *site* da *Australian Curriculum*, o processo de revisão começou em junho de 2020 e foi concluído no final de 2022. A nova versão do currículo pode ser consultadano referido *site*, sendo um importante objeto para novas pesquisas.

V. Conclusão

Como apontado na introdução deste artigo, os dados aqui apresentados fazem parte de uma pesquisa que teve como objetivo investigar a reforma curricular australiana, aprovada em 2012 durante o governo do Partido Trabalhista. Também foram objetos de análise a organização e a estrutura do sistema de ensino australiano. A título de informação destacamos o artigo publicado em 2022, no qual incluímos a forma como se apresentam as desigualdades nos sistemas de ensino da Austrália (SANTOS; ZAN, 2022). No que tange ao objetivo deste texto buscamos, mais especificamente, apresentar a organização curricular e explicitar o processo de construção do currículo nacional da Austrália, identificando as dinâmicas e os fundamentos da atual reforma curricular desenvolvida no país.

Com base nos documentos legais e nas pesquisas aqui examinados, pode-se concluir que a reforma curricular australiana decorre de um longo processo de disputas e divergências políticas e ideológicas em torno do currículo, embasada nos projetos sociais e educacionais ligados aos governos do Partido Liberal e do Partido Trabalhista. Uma disputa em torno do quedeveria ser ensinado para as crianças e os jovens na Austrália. Parece-nos, pois, legítimo afirmar que os interesses econômicos foram centrais para as tomadas de decisão. Observa-se um arrefecimento da concepção de igualdade, em detrimento da ideia de equidade capturada pela lógica neoliberal. Nesse sentido, podemos afirmar que a reforma curricular na Austrália foi fortemente marcada pelo ideário neoliberal.

Sem desconsiderar os avanços e os benefícios relativos à implementação do currículo nacional, as pesquisas analisadas apontam para importantes críticas ao processo de elaboração do currículo australiano que retomamos aqui: a desconexão entre os objetivos e as metas declarados; a repetição do "currículo do passado"; a falta de quadro conceitual coerente; a falta de compreensão das questões de equidade e currículo (REID, 2009). O possível ofuscamento do debate sobre as bases conceituais que deveriam sustentar o currículo, e as consequências da ausência dessas discussões para efetivação do currículo nas escolas pelo processo político (SCARINI, 2018). Em especial, a descrença na capacidade de superação das desigualdades apenas por meio do currículo (DRABSCH, 2013).

Uma questão que nos parece bastante significativa foi levantada por Reid (2018) e por Savage (2016): na Austrália é possível afirmar que existe um currículo nacional na prática? É importante considerar a complexidade do terreno político, que envolve, entre outras coisas, interesses e finalidades ideológicas, lembrando que o processo de desenvolvimento do currículo foi de responsabilidade da ACARA, mas que o processo de implementação tem sido de responsabilidade dos estados e territórios. Além disso, o desenho político de afinidade entre o governo federal e os estados e territórios, que possibilitou o desenvolvimento do currículo nacional, mudou durante o processo de implementação. Vimos que o cronograma de implementação do currículo nacional variou de estado para estado: em NSW as áreas de Inglês e Matemática para educação primária – anos iniciais ao ano 10 – foi incorporada em 2012, mas, na educação secundária sênior – anos 11 e 12 – só foi incorporada em 2017, e a área de Artes ainda não foi incorporada ao currículo do estado até o momento.

Concluímos com questões levantadas por Reid (2018) sobre as evidências relativas às justificativas para o desenvolvimento de um currículo nacional, tais como: por que um currículo nacional afetaria a taxa de retenção? Existem indícios de que um currículo nacional possa ser mais eficiente do que um currículo local? O que há na Austrália que torna um currículo nacional tão importante no contexto da globalização? (REID, 2018, p.15). E a questão mais importante e duradoura, segundo o autor: em que medida a estrutura e o conteúdo do currículo nacional contribui para o desenvolvimento de jovens capazes de desempenhar um papel produtivo e ativo nos esforços pessoais e colaborativos necessários para enfrentar os desafios dos tempos contemporâneos em nível local, nacional, regional e global? (REID, 2018). Para o autor este é um debate que ainda precisa ser feito e incorporado ao contexto educacional da Austrália.

Por fim, cabe-nos destacar a necessidade de olhar para os modelos indicados como exemplos de sucesso, como no caso da reforma curricular australiana, desvelando seus limites e contradições, de modo a não cair na armadilha das discussões que desconsideram o contexto sociopolítico das diferentes realidades nacionais.

© 2023 Global Journals

Referências Bibliográficas

1. ACARA. Agência Australiana de Currículo, Avaliação e Disseminação. *O formato do Currículo Australiano, versão 4.0,* 2012a. Disponível em http://movimentopelabase.org.br/wp-content/uploads/2015/09/150121_TheShape_vf-1.pdf. Acesso em: 02 out. 2018
2. ACARA. Agência Australiana de Currículo, Avaliação e Disseminação. Processo de desenvolvimento do Currículo Versão 6, 2012b. Disponível em: http://movimentopelabase.org.br/wp-content/uploads/2015/09/150121_ProcessoDesCurr_vf-1.pdf. Acesso em: 02 out. 2018.
3. ACARA. Assessment and Reporting Authority. *Australian Curriculum,* 2014. Learning Area Consultation Data. Disponível em: https://docs.acara.edu.au/resources/Australian_Curriculum_Learning_Area_Consultation_Data_2008-2013.pdf. Acesso em: 22 out. 2019.
4. APPLE, Michael. A política do conhecimento oficial: faz sentido a ideia de um currículo nacional?, in MOREIRA, Antônio Flávio e SILVA, Thomaz Tadeu (orgs.) *Currículo, Cultura e Sociedade.* São Paulo: Cortez, 2002.
5. AUSTRALIA. Australian Bureau of Statistics (ABS). *Government Finance Statistics, Education, Australia, 2017-18.* Disponível em: https://www.abs.gov.au/ausstats/abs@.nsf/0/4DA8D1A017737074CA257B4E0013BDE0?O pendocument. Acesso em: 16 set 2019.
6. AUSTRALIA, Australian Curriculum, *Assessment and Reporting Authority Act 2008.* No. 136, 2008. Disponível em: https://www.legislation.gov.au/Details/C2008A00136. Acesso em:02 ago. 2018.
7. AUSTRALIA. Australian Curriculum. *Senior secondary overview.* Disponível em: https://www.australiancurriculum.edu.au/media/3627/ss_info-sheet_overview.pdf. Acesso em: 20 out 2019.
8. AUSTRALIA, Australian Qualifications Framework. *2013* Disponível em: https://www.aqf.edu.au/what-is-the-aqf. Acesso em: 03 nov. 2019.
9. AUSTRALIA. Donnelly-Wiltshire Report, 2014. *Review of the Australian Curriculum:* Final Report. Disponível em: https://docs.education.gov.au/system/files/doc/other/review_of_the_national_curriculum_final_report.pdf. Acesso em: 08 ago. 2019.
10. AUSTRALIA. Ministerial Council on Education, Employment, Training and Youth Affairs 2008. *Melbourne Declaration on Educational Goals for Young Australians.* Disponível em: http://www.curriculum.edu.au/verve/_resources/National_Declaration_on_the_Educational_Goals_for_Young_Australians.pdf. Acesso em: 11 mar. 2019.
11. DRABSCH, Talina. The Australian Curriculum. *Briefing Paper* nº 1/2013. NSW Parliamentary Research Service. 2013. Disponível em: https://www.parliament.nsw.gov.au/researchpapers/Documents/the-australian-curriculum/The%20Australian%20Curriculum.pdf. Acesso em: 08 ago. 2019.
12. HALASZ, G.; MICHEL, A. Key competences in Europe: Interpretation, 235 policy formulation and implementation. *Wiley Online Library,* 12 ago. 2011. Disponível em: <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1465-3435.2011.01491.x>. Acesso em: 11mai. 2019.
13. KUNHI, Zahira P A Abdulla. *An analysis of 'c21 curriculum policy' within Australian contexts.* Thesis submitted in fulfilment of the requirements for the degree of Doctor of Education The University of Western Australia, 2019.
14. LÓPEZ, N. *Equidad educativa y desigualdad social:* desafíos a la educación en el nuevo escenario latinoamericano. Buenos Aires: IIPE – UNESCO, 2005.
15. MACINTYRE, Stuart. *The Challenge of History in the National Curriculum.* Keynote Address presented at the Australian Curriculum Studies Association Conference, 2 out. 2009. Canberra, ACT. Disponível em: <https://www.acsa.edu.au/pages/images/Stuart%20Macintyre%20Keynote%20address.pdf>. Acesso em: 18 abr. 2019.
16. MCGAW, Barry. *Statement from ACARA Chair Professor Barry McGaw.* Agência Australiana de Currículo, Avaliação e Disseminação (ACARA), 23 set. 2010. Disponível em: https://docs.acara.edu.au/resources/Statement_from_ACARA_Chair_Professor_Barry_McGaw.pdf. Acesso em: 22 abr. 2019.
17. NSW. New South Wales. *Education Standards Authority (NESA).* [S/D] Disponível em: https://educationstandards.nsw.edu.au/wps/portal/nesa/home. Acesso em: 19 out. 2019.
18. REID, Alan. Changing Australian Education: How policy is taking us backwards and what canbe done about it. London: Allen&Unwin, 2019. E-book.
19. REID, Alan. Is this a revolution? A critical analysis of the Rudd government's national education agenda. Artigo baseado no texto da palestra apresentada pelo autor na Conferência Bienal da ACSA em 2 out. 2009. Disponível em: https://acsa.edu.au/pages/images/ACSA%20Boomer%20address.pdf. Acesso em: 19 jul. 2019.
20. REID, Alan. The journey towards the first Australian curriculum *In*: REID, Alan; PRICE, Deborah. *The Australian curriculum:* promises, problems and possibilities. Canberra: Australian curriculum Studies Association (ACSA), 2018.
21. ROSE, John Robert. *The Australian national curriculum:* perspectives of teachers and school administrators on issues and concerns surrounding implementation. Thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy. University of Adelaide: 2015.
22. SANTOS, Danielle de Sousa; ZAN, Dirce Djanira Pacheco e. O sistema de ensino australiano: um

© 2023 Global Journals

olhar sobre as desigualdades educacionais. *Educação em Revista,* v. 38, 2022.

23. SAVAGE, Glenn C. Who's steering the ship? National curriculum reform and the re-shaping of Australian federalism. *Journal of Education Policy,* Chicago, v. 31, n. 6, pp. 833-850, 2016. DOI: 10.1080/02680939.2016.1202452. Disponível em: https://www.tandfonline.com/doi/full/10.1080/02680939.2016.1202452. Acesso em: 11 abr. 2019.
24. SAVAGE, Glenn & SELLAR, Sam & GORUR, Radhika. (2013). *Equity and marketisation: emerging policies and practices in Australian education.* Disponível em https://www.researchgate.net/publication/263407322_Equity_and_marketisation_emerging_policies_and_practices_in_Australian_education. Acesso em: 06 de jan. 2019
25. SCARINI, Angela. The Australian Curriculum and its conceptual base: a critical analysis. *In*: REID, Alan; PRICE, Deborah. *The Australian curriculum:* promises, problems and possibilities. Canberra: Australian curriculum Studies Association (ACSA), 2018.

© 2023 Global Journals

Global Journals Guidelines Handbook 2023

www.GlobalJournals.org

Memberships

Fellows/Associates of Social Science Research Council

FSSRC/ASSRC Memberships



Introduction

FSSRC/ASSRC is the most prestigious membership of Global Journals accredited by Open Association of Research Society, U.S.A (OARS). The credentials of Fellow and Associate designations signify that the researcher has gained the knowledge of the fundamental and high-level concepts, and is a subject matter expert, proficient in an expertise course covering the professional code of conduct, and follows recognized standards of practice. The credentials are designated only to the researchers, scientists, and professionals that have been selected by a rigorous process by our Editorial Board and Management Board.

Associates of FSSRC/ASSRC are scientists and researchers from around the world are working on projects/researches that have huge potentials. Members support Global Journals' mission to advance technology for humanity and the profession.

FSSRC

Fellow of Social Science Research Council

FELLOW OF SOCIAL SCIENCE RESEARCH COUNCIL is the most prestigious membership of Global Journals. It is an award and membership granted to individuals that the Open Association of Research Society judges to have made a 'substantial contribution to the improvement of computer science, technology, and electronics engineering.

The primary objective is to recognize the leaders in research and scientific fields of the current era with a global perspective and to create a channel between them and other researchers for better exposure and knowledge sharing. Members are most eminent scientists, engineers, and technologists from all across the world. Fellows are elected for life through a peer review process on the basis of excellence in the respective domain. There is no limit on the number of new nominations made in any year. Each year, the Open Association of Research Society elect up to 12 new Fellow Members.

Benefit

To the institution

Get letter of appreciation

Global Journals sends a letter of appreciation of author to the Dean or CEO of the University or Company of which author is a part, signed by editor in chief or chief author.



Exclusive Network

Get access to a closed network

A FSSRC member gets access to a closed network of Tier 1 researchers and scientists with direct communication channel through our website. Fellows can reach out to other members or researchers directly. They should also be open to reaching out by other.

Career | Credibility | Exclusive | Reputation



Certificate

Certificate, LOR and Laser-Momento

Fellows receive a printed copy of a certificate signed by our Chief Author that may be used for academic purposes and a personal recommendation letter to the dean of member's university.

Career | Credibility | Exclusive | Reputation



Designation

Get honored title of membership

Fellows can use the honored title of membership. The “FSSRC” is an honored title which is accorded to a person’s name viz. Dr. John E. Hall, Ph.D., FSSRC or William Walldroff, M.S., FSSRC.

Career | Credibility | Exclusive | Reputation

Recognition on the Platform

Better visibility and citation

All the Fellow members of FSSRC get a badge of "Leading Member of Global Journals" on the Research Community that distinguishes them from others. Additionally, the profile is also partially maintained by our team for better visibility and citation. All fellows get a dedicated page on the website with their biography.

Career | Credibility | Reputation

© Copyright by Global Journals | Guidelines Handbook

Future Work

Get discounts on the future publications

Fellows receive discounts on future publications with Global Journals up to 60%. Through our recommendation programs, members also receive discounts on publications made with OARS affiliated organizations.

Career | Financial



GJ Account

Unlimited forward of Emails

Fellows get secure and fast GJ work emails with unlimited forward of emails that they may use them as their primary email. For example,
john [AT] globaljournals [DOT] org.

Career | Credibility | Reputation



Premium Tools

Access to all the premium tools

To take future researches to the zenith, fellows receive access to all the premium tools that Global Journals have to offer along with the partnership with some of the best marketing leading tools out there.

Financial

Conferences & Events

Organize seminar/conference

Fellows are authorized to organize symposium/seminar/conference on behalf of Global Journal Incorporation (USA). They can also participate in the same organized by another institution as representative of Global Journal. In both the cases, it is mandatory for him to discuss with us and obtain our consent. Additionally, they get free research conferences (and others) alerts.

Career | Credibility | Financial

Early Invitations

Early invitations to all the symposiums, seminars, conferences

All fellows receive the early invitations to all the symposiums, seminars, conferences and webinars hosted by Global Journals in their subject.

Exclusive



Publishing Articles & Books

Earn 60% of sales proceeds

To take future researches to the zenith, fellows receive access to all the premium tools that Global Journals have to offer along with the partnership with some of the best marketing leading tools out there.

Exclusive | Financial

Reviewers

Get a remuneration of 15% of author fees

Fellow members are eligible to join as a paid peer reviewer at Global Journals Incorporation (USA) and can get a remuneration of 15% of author fees, taken from the author of a respective paper.

Financial

Access to Editorial Board

Become a member of the Editorial Board

Fellows may join as a member of the Editorial Board of Global Journals Incorporation (USA) after successful completion of three years as Fellow and as Peer Reviewer. Additionally, Fellows get a chance to nominate other members for Editorial Board.

Career | Credibility | Exclusive | Reputation

And Much More

Get access to scientific museums and observatories across the globe

All members get access to 5 selected scientific museums and observatories across the globe. All researches published with Global Journals will be kept under deep archival facilities across regions for future protections and disaster recovery. They get 10 GB free secure cloud access for storing research files.

© Copyright by Global Journals | Guidelines Handbook

ASSRC

ASSOCIATE OF SOCIAL SCIENCE RESEARCH COUNCIL

ASSOCIATE OF SOCIAL SCIENCE RESEARCH COUNCIL is the membership of Global Journals awarded to individuals that the Open Association of Research Society judges to have made a 'substantial contribution to the improvement of computer science, technology, and electronics engineering.

The primary objective is to recognize the leaders in research and scientific fields of the current era with a global perspective and to create a channel between them and other researchers for better exposure and knowledge sharing. Members are most eminent scientists, engineers, and technologists from all across the world. Associate membership can later be promoted to Fellow Membership. Associates are elected for life through a peer review process on the basis of excellence in the respective domain. There is no limit on the number of new nominations made in any year. Each year, the Open Association of Research Society elect up to 12 new Associate Members.

To the institution

Get letter of appreciation

Global Journals sends a letter of appreciation of author to the Dean or CEO of the University or Company of which author is a part, signed by editor in chief or chief author.



Exclusive Network

Get access to a closed network

A ASSRC member gets access to a closed network of Tier 2 researchers and scientists with direct communication channel through our website. Associates can reach out to other members or researchers directly. They should also be open to reaching out by other.

Career | Credibility | Exclusive | Reputation



Certificate

Certificate, LoR and Laser-Momento

Associates receive a printed copy of a certificate signed by our Chief Author that may be used for academic purposes and a personal recommendation letter to the dean of member's university.

Career | Credibility | Exclusive | Reputation



Designation

Get honored title of membership

Associates can use the honored title of membership. The “ASSRC” is an honored title which is accorded to a person’s name viz. Dr. John E. Hall, Ph.D., ASSRC or William Walldroff, M.S., ASSRC.

Career | Credibility | Exclusive | Reputation

Recognition on the Platform

Better visibility and citation

All the Associate members of ASSRC get a badge of "Leading Member of Global Journals" on the Research Community that distinguishes them from others. Additionally, the profile is also partially maintained by our team for better visibility and citation.

Career | Credibility | Reputation

© Copyright by Global Journals | Guidelines Handbook

Future Work

Get discounts on the future publications

Associates receive discounts on future publications with Global Journals up to 30%. Through our recommendation programs, members also receive discounts on publications made with OARS affiliated organizations.

Career | Financial



GJ Account

Unlimited forward of Emails

Associates get secure and fast GJ work emails with 5GB forward of emails that they may use them as their primary email. For example, john [AT] globaljournals [DOT] org.

Career | Credibility | Reputation



Premium Tools

Access to all the premium tools

To take future researches to the zenith, fellows receive access to almost all the premium tools that Global Journals have to offer along with the partnership with some of the best marketing leading tools out there.

Financial

Conferences & Events

Organize seminar/conference

Associates are authorized to organize symposium/seminar/conference on behalf of Global Journal Incorporation (USA). They can also participate in the same organized by another institution as representative of Global Journal. In both the cases, it is mandatory for him to discuss with us and obtain our consent. Additionally, they get free research conferences (and others) alerts.

Career | Credibility | Financial

Early Invitations

Early invitations to all the symposiums, seminars, conferences

All associates receive the early invitations to all the symposiums, seminars, conferences and webinars hosted by Global Journals in their subject.

Exclusive



Publishing Articles & Books

Earn 60% of sales proceeds

Associates can publish articles (limited) without any fees. Also, they can earn up to 30-40% of sales proceeds from the sale of reference/review books/literature/publishing of research paper.

Exclusive | Financial

Reviewers

Get a remuneration of 15% of author fees

Associate members are eligible to join as a paid peer reviewer at Global Journals Incorporation (USA) and can get a remuneration of 15% of author fees, taken from the author of a respective paper.

Financial

And Much More

Get access to scientific museums and observatories across the globe

All members get access to 2 selected scientific museums and observatories across the globe. All researches published with Global Journals will be kept under deep archival facilities across regions for future protections and disaster recovery. They get 5 GB free secure cloud access for storing research files.

Associate	Fellow	Research Group	Basic
$4800 **lifetime designation**	$6800 **lifetime designation**	$12500.00 **organizational**	APC **per article**
Certificate, LoR and Momento **2** discounted publishing/year **Gradation** of Research **10** research contacts/day **1 GB** Cloud Storage **GJ** Community Access	**Certificate,** LoR and Momento **Unlimited** discounted publishing/year **Gradation** of Research **Unlimited** research contacts/day **5 GB** Cloud Storage **Online Presense** Assistance **GJ** Community Access	**Certificates,** LoRs and Momentos **Unlimited** free publishing/year **Gradation** of Research **Unlimited** research contacts/day **Unlimited** Cloud Storage **Online Presense** Assistance **GJ** Community Access	**GJ** Community Access

Preferred Author Guidelines

We accept the manuscript submissions in any standard (generic) format.

We typeset manuscripts using advanced typesetting tools like Adobe In Design, CorelDraw, TeXnicCenter, and TeXStudio. We usually recommend authors submit their research using any standard format they are comfortable with, and let Global Journals do the rest.

Alternatively, you can download our basic template from https://globaljournals.org/Template.zip

Authors should submit their complete paper/article, including text illustrations, graphics, conclusions, artwork, and tables. Authors who are not able to submit manuscript using the form above can email the manuscript department at submit@globaljournals.org or get in touch with chiefeditor@globaljournals.org if they wish to send the abstract before submission.

Before and during Submission

Authors must ensure the information provided during the submission of a paper is authentic. Please go through the following checklist before submitting:

1. Authors must go through the complete author guideline and understand and *agree to Global Journals' ethics and code of conduct,* along with author responsibilities.
2. Authors must accept the privacy policy, terms, and conditions of Global Journals.
3. Ensure corresponding author's email address and postal address are accurate and reachable.
4. Manuscript to be submitted must include keywords, an abstract, a paper title, co-author(s') names and details (email address, name, phone number, and institution), figures and illustrations in vector format including appropriate captions, tables, including titles and footnotes, a conclusion, results, acknowledgments and references.
5. Authors should submit paper in a ZIP archive if any supplementary files are required along with the paper.
6. Proper permissions must be acquired for the use of any copyrighted material.
7. Manuscript submitted *must not have been submitted or published elsewhere* and all authors must be aware of the submission.

Declaration of Conflicts of Interest

It is required for authors to declare all financial, institutional, and personal relationships with other individuals and organizations that could influence (bias) their research.

Policy on Plagiarism

Plagiarism is not acceptable in Global Journals submissions at all.

Plagiarized content will not be considered for publication. We reserve the right to inform authors' institutions about plagiarism detected either before or after publication. If plagiarism is identified, we will follow COPE guidelines:

Authors are solely responsible for all the plagiarism that is found. The author must not fabricate, falsify or plagiarize existing research data. The following, if copied, will be considered plagiarism:

- Words (language)
- Ideas
- Findings
- Writings
- Diagrams
- Graphs
- Illustrations
- Lectures

- Printed material
- Graphic representations
- Computer programs
- Electronic material
- Any other original work

Authorship Policies

Global Journals follows the definition of authorship set up by the Open Association of Research Society, USA. According to its guidelines, authorship criteria must be based on:

1. Substantial contributions to the conception and acquisition of data, analysis, and interpretation of findings.
2. Drafting the paper and revising it critically regarding important academic content.
3. Final approval of the version of the paper to be published.

Changes in Authorship

The corresponding author should mention the name and complete details of all co-authors during submission and in manuscript. We support addition, rearrangement, manipulation, and deletions in authors list till the early view publication of the journal. We expect that corresponding author will notify all co-authors of submission. We follow COPE guidelines for changes in authorship.

Copyright

During submission of the manuscript, the author is confirming an exclusive license agreement with Global Journals which gives Global Journals the authority to reproduce, reuse, and republish authors' research. We also believe in flexible copyright terms where copyright may remain with authors/employers/institutions as well. Contact your editor after acceptance to choose your copyright policy. You may follow this form for copyright transfers.

Appealing Decisions

Unless specified in the notification, the Editorial Board's decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

Acknowledgments

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

Declaration of funding sources

Global Journals is in partnership with various universities, laboratories, and other institutions worldwide in the research domain. Authors are requested to disclose their source of funding during every stage of their research, such as making analysis, performing laboratory operations, computing data, and using institutional resources, from writing an article to its submission. This will also help authors to get reimbursements by requesting an open access publication letter from Global Journals and submitting to the respective funding source.

Preparing your Manuscript

Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.

Manuscript Style Instruction (Optional)

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11'", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

Structure and Format of Manuscript

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

a) A title which should be relevant to the theme of the paper.
b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
d) An introduction, giving fundamental background objectives.
e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
f) Results which should be presented concisely by well-designed tables and figures.
g) Suitable statistical data should also be given.
h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
j) There should be brief acknowledgments.
k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.



Format Structure

It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

All manuscripts submitted to Global Journals should include:

Title

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

Author details

The full postal address of any related author(s) must be specified.

Abstract

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Keywords

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, “What words would a source have to include to be truly valuable in a research paper?” Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods

Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.

Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

Preparation of Eletronic Figures for Publication

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

Tips for writing a good quality Social Science Research Paper

Techniques for writing a good quality homan social science research paper:

1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

4. Use of computer is recommended: As you are doing research in the field of homan social science then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

5. Use the internet for help: An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.



6. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

7. Revise what you wrote: When you write anything, always read it, summarize it, and then finalize it.

8. Make every effort: Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

9. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

10. Use proper verb tense: Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. Pick a good study spot: Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. Know what you know: Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. Arrangement of information: Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.
Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

19. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

20. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

21. Report concluded results: Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

22. Upon conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear: Adhere to recommended page limits.



© Copyright by Global Journals | Guidelines Handbook

Mistakes to avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.

The following approach can create a valuable beginning:

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

Approach:

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

Procedures (methods and materials):

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

Materials may be reported in part of a section or else they may be recognized along with your measures.

Methods:

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

What to keep away from:

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.



© Copyright by Global Journals | Guidelines Handbook

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

Content:

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

Approach:

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."



Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

The Administration Rules

Administration Rules to Be Strictly Followed before Submitting Your Research Paper to Global Journals Inc.

Please read the following rules and regulations carefully before submitting your research paper to Global Journals Inc. to avoid rejection.

Segment draft and final research paper: You have to strictly follow the template of a research paper, failing which your paper may get rejected. You are expected to write each part of the paper wholly on your own. The peer reviewers need to identify your own perspective of the concepts in your own terms. Please do not extract straight from any other source, and do not rephrase someone else's analysis. Do not allow anyone else to proofread your manuscript.

Written material: You may discuss this with your guides and key sources. Do not copy anyone else's paper, even if this is only imitation, otherwise it will be rejected on the grounds of plagiarism, which is illegal. Various methods to avoid plagiarism are strictly applied by us to every paper, and, if found guilty, you may be blacklisted, which could affect your career adversely. To guard yourself and others from possible illegal use, please do not permit anyone to use or even read your paper and file.

Criterion for Grading a Research Paper (Compilation) by Global Journals

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals

Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

INDEX

A

Adolescent · 6
Apprehension · 3, 2
Arbitrary · 17
Aroused · 2
Assumption · 4, 2, 17
Augmented · 1, 2, 3
Aviation · 1, 4

C

Constructivism · 1, 4, 1
Convergence · 2

D

Daunting · 1
Deteriorate · 4
Discoursal · 5

E

Evaluative · 2
Excessively · 3
Experiential · 7

I

Immerses · 2
Impairment · 1, 2, 3, 5, 2
Inclusive · 1, 2, 18, 5
Interpretive · 1, 3

M

Meritocracy · 11, 12, 18

O

Obligatory · 2, 5
Operable · 6

P

Peculiarities · 1
Penetrated · 2

R

Redundancy · 2
Resonance · 5
Rigidly · 2

S

Screwing · 2
Sculpture · 5, 2
Steepness · 2
Stimulus · 1



save our planet



Global Journal of Human Social Science

Visit us on the Web at www.GlobalJournals.org | www.SocialScienceResearch.org
or email us at helpdesk@globaljournals.org



ISSN 975587

© Global Journals