ISSN 2334-847X (Printed)
ISSN 2334-8496 (Online)

IJCR SEE

INTERNATIONAL JOURNAL OF COGNITIVE RESEARCH IN SCIENCE, ENGINEERING AND EDUCATION

IJCRSEE

Volume 7, Issue 3, December 2019.

www.ijcrsee.com

ISSN 2334-847X (Printed)
ISSN 2334-8496 (Online)

INTERNATIONAL JOURNAL OF COGNITIVE RESEARCH IN SCIENCE, ENGINEERING AND EDUCATION

IJCRSEE

Volume 7, Issue 3, December 2019.

IMPRESSUM

International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE)
Volume 7, Issue 3, December 2019.

Editor in chief:
Dr. Lazar Stošić

Publisher:
The Association for the development of science, engineering and education
Address: Prvi maj 18, 17500 Vranje, Serbia
Phone: +381 17 400 165, + 381 63 700 4281
www.urnio.org.rs
E-mail: predsednik@urnio.org.rs

For publisher:
Dr. Lazar Stošić

Print:
Aurora O. D. Vranje

Circulation:
100 copies

Indexed & Abstracted:
SCOPUS, SJR - Scimago Journal, ProQuest, EBSCO (Academic Search Ultimate Magazines and Journal), SCIndeks, DOI Serbia, Central and Eastern European Online Library (CEEOL), Dimensions, CyberLeninka, e-Library RU, COBISS.SR, MIAR, Sherpa/Romeo, CNKI, Turkish Education Index, ROAD, GoogleScholar, Dialnet, Harvard University Library, WorldCat, PUBDB DESY Publication Database, Journals Index (OAJI), I J-Gate, Cabell's Directory, JOUR Informatics, Academic Journals Database, WorldWideScience Sources, UlrichsWeb, TIB-German National Library of Science and Technology, Science Central, Electronic Journals Library, Academic Keys, ETH-Bibliothek, BASE, PBN, OAJ, JournalTOCs...

CONTENTS

International Journal of Cognitive Research in Science, Engineering and Education

(IJCRSEE)

EDITORIAL

International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE) is an open access international peer-reviewed, open-access journal, which provides a platform for highlighting and discussing various cognitive science issues dealing with the problems of cognition (and its evolution) within some specific subject field - philosophical, psychological, linguistic, mathematical, psychogenetic, pedagogical, ergonomic. Editorial Board strives to provide a possibility for the scientists of different fields to publish the results of their research, technical and theoretical studies. IJCRSEE is multidisciplinary in approach, and will publish a great range of papers: reports of qualitative case studies, quantitative experiments and surveys, mixed method studies, action researches, meta-analyses, discussions of conceptual and methodological issues, etc. IJCRSEE publisher is The Association for the Development of Science, Engineering and Education, Vranje, Serbia. Quality control, assisting and monitoring are supported by co-publishers:

- Don State Technical University - DSTU, Rostov on Don, Russia - https://donstu.ru/

IJCRSEE particularly welcomes articles on the results of scientific research in various fields of cognitive science (psychology, artificial intelligence, linguistics, philosophy and neuroscience) catering for international and multidisciplinary audience. Readers include those in cognitive psychology, special education, education, adult education, educational psychology, school psychology, speech and language, and public policy.IJCRSEE has regular sections: Original Research, Review Articles, Studies and articles, Book Reviews, Case Studies, and is published 3 issues per year (April, August and December). This journal provides an immediate open access to its contents, which makes research results available to the public based on the global exchange of knowledge. The journal also offers access to uncorrected and corrected proofs of articles before they are published.

The main **aim** of the Journal is to discuss global prospects and innovations concerning major issues of cognitive science, to publish new scientific results of cognitive science research, including the studies of cognitive processes, emotions, perception, memory, thinking, problem solving, planning, education and teaching, language and consciousness study, the results of studying man's cognitive development and the formation of basic cognitive skills in everyday life. The Journal seeks to stimulate the initiation of new research and ideas in cognitive science for the purpose of integration and interaction of international specialists in the development of cognitive science as interdisciplinary knowledge.

All articles are published in English and undergo a peer-review process.

The **scope** of IJCRSEE is focused on cognitive research both in topics covered as well as disciplinary perspective:

- Cognitive Research in Education
- Cognitive Pedagogics
- Cognitive Psychology
- Psycholinguistics
- Cognitive Linguistics
- Cognitive Culture Studies
- Cognitive Neurophysiology
- Cognitive Aspects: Sport Culture
- Cognitive Aspects: Methodology of Knowledge
- Text Processing and Cognitive Technologies
- Curriculum Development
- Development of Learning Environment
- Education Administration
- Educational Psychology

- Educational Technology
- Elementary Education
- Innovative Pedagogical Models
- Learning Systems Platforms
- Media Education
- Science Education
- Teaching and Learning Technologies

IJCRSEE has an international editorial board of eminent experts in their field from Russia, USA, Republic of Macedonia, Germany, Hong Kong, Greece, Serbia, Australia, United Kingdom, USA, Turkey, Nigeria, Bulgaria, Romania, Spain, Italy, Republic of Srpska, Croatia, Kingdom of Saudi Arabia (KSA), India, China, Thailand, Israel, Malaysia, Morocco, Jordan,, Iran... We are confident that IJCRSEE will attract a great number of editors, eminent scientists in the field. The selection will be based on the activities of the editors and their desire to contribute to the development of the journal.

IJCRSEE provides a platform for academics and scientists professionals to refer and discuss recent progress in the fields of their interests. Authors are encouraged to contribute articles which are not published or not under review in any other journal.

Each submitted manuscript is evaluated on the following basis: the originality of its contribution to the field of scholarly publishing, the soundness of its theory and methodology, the coherence of its analysis, its availability to readers (grammar and style). Normal turn-around time for the evaluation of manuscripts is one to two months from the date of receipt.

Submission of an original manuscript to the journal will be taken to mean that it represents original work not previously published, that is not being considered elsewhere for publication; that the author is willing to assign the copyright to the journal as per a contract that will be sent to the author just prior to the publication and, if accepted, it will be published in print and online and it will not be published elsewhere in the same form, for commercial purposes, in any language, without the consent of the publisher.

The names and email addresses entered in this journal site will be used exclusively for the stated purposes of this journal and will not be made available for any other purpose or to any other party.

When considering submitting an article, the Editors have provided the following criteria to assist authors with preparing their submissions:

Originality – The author should ensure that the manuscript has not been previously published nor is being considered by another journal.

Plagiarism - All articles are tested with iThenticate software. Content should be properly referenced. Be sure to check the paper for possible accidental plagiarism. Some plagiarism checker websites include: http://www.ithenticate.com/, www.antiplagiat.ru, www.grammarly.com, www.plagtracker.com or www.duplichecker.com

Writing – Please write in good English (American or British usage is accepted, but not a mixture of these). For non-native English speakers, and perhaps even for some native English speakers, grammar, spelling, usage, and punctuation of the texts are very important for an effective presentation. Hence, manuscripts are expected to be written in a clear, cogent, and readily understandable by an international readership.

Manuscripts must be submitted online. Electronic submission reduces the editorial processing and reviewing time. As part of the submission process, authors are required to check off their submission compliance with all of the following items, and submissions may be returned to authors who do not adhere to the following guidelines:

The submission has not been previously published or presented to another journal for consideration (or an explanation has been provided in Comments to the Editor).

The submission file is in OpenOffice, Microsoft Word, RTF, or WordPerfect document file format.

Where available, URLs for the references have been provided.

The text is single-spaced; uses a 12-point font; employs italics, rather than underlining (except with URL addresses); and all illustrations, figures, and tables are placed within the text at the appropriate points, rather than at the end.

The text adheres to the stylistic and bibliographic requirements outlined in the Author Guidelines.

If submitting to a peer-reviewed section of the journal, the instructions in ***Ensuring a***

Blind Review have been followed.

A manuscript goes through the peer review process. Authors submit manuscripts to **Editorial office** via the online system. The acknowledgement letter should be sent to the author to confirm the receipt of the manuscript. The Chief Editor first reviews manuscripts. Chief Editor is assisted by Section Editors (could also be Co- or Associated Editors). The Editor assigns a Section Editor to see the manuscript through the complete review process and return it with a recommendation or decision. The manuscript is checked to see if it meets the scope of the Journal and its formal requirements. If it is incorrect or unsuitable, the author should be informed and the manuscript filed (or returned if requested) – direct rejection. Manuscripts that are not suitable for publication in the Journal are rejected. A Rejection letter is sent to the author stating the reason for rejection. If the manuscript conforms to the aims and scope of the Journal, and formally abides by the Instructions to Authors it is sent out for review. Depending on the type of paper, it could be accepted immediately for publication (invited Editorial, Book review etc) by the Chief Editor.

Check that the manuscript has been written and styled in accordance with the Journal style; that it carries an abstract (if applicable), keywords, correct reference system etc. and check that the correct blinding system has been used. If anything is missing ask the author to complete it before the manuscript is sent out for review.

The manuscript is sent out for review. The reviewer reads and evaluates the manuscript and eventually sends a review report to the Chief Editor. The time for review can be set to 2-6 weeks depending on the discipline (more time is usually given to papers in the humanities and social sciences). Make sure to provide the reviewer with clear instructions for the work, e.g. outlined in the form of a Review report or a number of questions to be considered.

Based on the reviewers' comments the Chief Editor makes a decision to:

- Accept the manuscript without further revision
- Accept after revision
- Ask authors to resubmit
- Reject

An acceptance letter is sent to the author and the final manuscript is forwarded to production. Sometimes, the authors are requested to revise in accordance with reviewers' comments and submit the updated version or their manuscript to the Chief Editor. The time for review can be set to 2-8 weeks depending on the discipline and type of additional data, information or argument required. The authors are requested to make substantial revisions to their manuscripts and resubmit for a new evaluation. A rejection letter is sent to the author and the manuscript is archived. Reviewers might be informed about the decision.

After review a manuscript goes to the Copy Editor who will correct the manuscript concerning the correct referencing system, confirmation with the journal style and layout. When Copy Editor finishes his/her work they send manuscripts to the Layout editor.

Layout Editor is responsible for structuring the original manuscript, including figures and tables, into an article, activating necessary links and preparing the manuscript in the various formats, in our case PDF and HTML format. When Layout Editor finishes his/her job they send manuscripts to Proof Editor. Proof Editor confirms that the manuscript has gone through all the stages and can be published.

This issue has 8 articles (6 Original Research, 1 Case Studie and 1 Book Review). Our future plan is to increase the number of quality research papers from all fields of cognitive research in science, engineering and education. The editors seek to publish articles from a wide variety of academic disciplines and substantive fields; they are looking forward to substantial improvement of educational processes and outcomes.

Editor in Chief
Asst. prof. Dr. Lazar Stošić

International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE)
Address: Prvi maj 18, 17500 Vranje, Serbia
Phone: +381 17 400 165, + 381 63 700 4281
Web: www.ijcrsee.com
E-mail: editor@ijcrsee.com

Editor in Chief

Editorial Advisory Board

Editorial Board members

International Editorial Board members

THE EXPERT OPINION ON QUALITY OF FAMILY FUNCTIONING IN CROATIA

Dr. Ivana Visković, University of Split, Faculty of Humanities and Social Sciences, Croatia
E-mail: iviskovic@ffst.hr
Dr. Maja Ljubetić, University of Split, Faculty of Humanities and Social Sciences, Croatia
E-mail: ljubetic@ffst.hr

ARTICLE INFO

Original Research
Received: June, 26.2019.
Revised: November, 11.2019.
Accepted: November, 17.2019.
doi: 10.5937/IJCRSEE1903001V

UDK
37.018.1(497.5)
159.923.2.072-053.2/.6(497.5)

Keywords:
certain aspects of the educational function,
Delphi method,
educational outcomes,
family,
family functions,
family relationship,
parenting.

ABSTRACT

A number of recent studies found the link between the quality of family functioning, welfare and children's achievement. In the absence of longitudinal studies on the quality of family functioning in Croatia, the expert opinion on family functions and the educational aspects of family life was explored. The data was obtained by classic Delphi method, in three cycles. Anonymous discussion was accepted as a quality manner of idea generating and analysis. Socio-emotional and upbringing functions have been singled out as the most significant permanent family functions, while the educational function is gradually taken over by the society. The expert opinion on family functions and the educational aspects of family life in Croatia was explored. The development of self-esteem and self-respect in children has been identified as the most important aspect of the upbringing function of family. It is assumed that the quality of growing up is related to growing up in families with family functioning. Research participants anticipate further changes in the family structure and the way that family functions. There was no consensus on the unambiguous definition of the family as a concept. There was no statistically significant difference between the opinions of the research participants on the importance of individual family functions in the modern society, and the predictors of the quality of family life. Due to the long-term economic crisis, there is a justified concern about the quality of parenting and, subsequently, the current and long-term welfare of children.

1. INTRODUCTION

The family is a unique community determined by the structure and functions it meets in order to respond to the needs of its members. Structurally, family is an (un) conscious network of interactive relationships between children and parents. Every family member responds, openly or latently, to the processes and changes, events and possible pressures on and within family, and this process is bidirectional – the reaction of an individual reflects on the entire family. If we paraphrase Watzlawick's rules of communication (Watzlawick, 1993), we can assume there are family influences even when there are no visible manifestations of family interaction (for example, children who grow up outside the family, without parental care).

Particular family relationships between (biologically or socially conditioned) children and (heterosexual or homosexual) parents with the (im) permeability of family boundaries, direct the understanding of the family as an interactive social construct. The quality of family life is recognizable for ways in which the family meets their functions, and meets the needs of its members (Belsky, et al., 2012; Olson, 2011; Vandell, et al., 2010):

- Interconnections in the family (cohesiveness) through which family members meets their needs for love, belonging, closeness, and attachment. This can be seen in the level of mutual trust, emotional expressiveness, ways in which family members spend time with each other, caring behaviours, individuals' balance, ways of planning, decision-making and actions, and ways of solving problems.

Corresponding Author
Dr. Ivana Visković, University of Split, Faculty of Humanities and Social Sciences, Croatia
E-mail: iviskovic@ffst.hr

- Flexibility as a family's ability to adapt to developmental cycles, family processes and possible stressful situations, crises and traumas, as well as everyday situations. The boundaries of family and the permeability of borders in relation to the social environment referred to in the forms of leadership.
- Power allocation methods that are recognizable in decision-making and solving problems.
- Communication as an operational modality of family cohesion, flexibility, and parenting style, recognizable in emotional expressions.

The family functions are a nonlinear dynamic system. Changes (in relations, structures, and ways in which functions are performed) are expected, but not clearly predictable. Children are particularly vulnerable to the changes in family life. The development of the child's personality, independence, self-respect, and self-esteem, as well as their socio-emotional, cognitive, and communicative competences is linked to the quality of family functioning. However, this connection is not always linearly causal.

In order to adequately respond to the needs of its members, the family meets a number of functions. Apart from the economic function, which some theorists in the absence of real evidence claim to be the cause of the emergence of family, reproductive-biological, socio-emotional, and educational functions can be recognized. Some functions are modified in accordance with social changes (e.g. living together, care and protection), and some are taken over by the society (e.g. caring for the old and helpless members). The function of early education and care, and that of formal education, is increasingly taken over by the society. However, this does not diminish the educational function of family, which is linked with all other functions.

The modern family lives relatively alone, which most often leads to the absence of support from the family social network. Busy life of parents, as a rule, leads to the institutionalization of childhood. It is reasonable to assume that during early childhood, some children will spend more time with professionals than with their parents. Higher education of employed mothers is in a positive correlation with a smaller number of children in the family (Eurostat, 2018), and in a negative correlation with the maternal care time (D'Addato, 2010; Vandell, et al., 2010). At the same time, fathers are getting more and more involved in the care of their children. Family relationships are (prevailingly) egalitarian, and parents care for their children together, which can contribute to the *synergy of togetherness* and the wellbeing of children in the family. Children are getting more and more accepted as active and equal members of family functioning and the development of independence which is encouraged according to their age. This can contribute to the personal satisfaction of family members and the quality of family functioning and indirectly, the quality of growing up in the family (Amato, 2012).

The conditions of growing up and education in the family are largely related to the family's economic status, which also reflects on the quality of parenting. The long-term economic crisis in Croatia undeniably affects the family and the quality of family functioning. The number of families living in poverty and those at risk of poverty is growing. It is estimated that in the Republic of Croatia 26.6% of children aged 0 – 17 are living at risk of poverty (Eurostat, 2018), and every third settlement (town and village) in Croatia has no organized institutional education for children of early and preschool age (Ministry of Science and Education, 2019). At the same time, young people are increasingly leaving Croatia: as much as 36000 mostly young people left during 2017 alone (Croatian Bureau of Statistics, 2018). This data facts points to complex problems that are also reflects the quality of family functioning

The purpose of this research was to understand the family, to recognize and evaluate family functions and educational aspects of the family life, currently in Croatia.

2. MATERIALS AND METHODS

The current dispute scientists are reduced solely to the definition of family (by family members). The contextual family conditions associated with the children's welfare and their educational outcomes are neglected. Without the ability to conduct a longitudinal study we explored the experts' opinion in Croatia.

Bearing in mind differences in the professional experience of the participants, it was assumed that *there is a statistically significant difference between the research participants (scientists and practitioners) in their estimations of the importance of individual family functions, individual aspects of the educational role of family, and the quality of parenting for the child's growing up.*

An empirical non-experimental research

of expert opinion was conducted using the classic Delphi method through three cycles. Two important reasons have led to the choice of the Delphi method: the difficulty of selecting a representative sample of families in Croatia and the presumed tendency to give desirable answers regarding self-evaluation of the quality of personal family functioning.

The Delphi method implies a scientific approach through the process of conducting a survey and discussion among anonymous participants during two or more cycles (Visković, 2016). It is applied in situations where, in the absence of relevant data, the opinion of experts is researched. The research involved scientists and practitioners to compare the perception of individuals who are supposed to have scientific insights and those who have insights into the practice. The collected data is processed between each cycle (measures of central tendency and estimation direction) and submitted to the participants for further consideration and evaluation by the research subjects and generation of new ideas. The anonymous discussion about new ideas and/or different argumentative statements was for which no prior consent has been obtained. The aim was not necessarily to achieve consensus among the participants, but to collect the arguments that could contribute to the understanding of the subject matter of the research (Green, 2014).

In the construction of the research instrument, a combined approach was used: the evaluation of existing scientific theses, the possibility of proposing and evaluating new claims. In order for participants to focus on the research problem, the first-cycle instrument was constructed based on the theoretical analysis of the recent sources, without reference to the sources so that participants can impartially evaluate theses rather than authors. The first-cycle instrument included existing family definitions, family functions (18 items), aspects of the educational role of family (19 items) and predictors of the quality of family functioning (17 items). The estimation was possible on a 6-degree scale (ranging from 1 = *completely insignificant* to 6 = *very significant*). Research participants were encouraged to create and argue their personal as well as their scientific and professional views. Generated statements were offered to the participants in the second and third cycle instruments for discussion and evaluation. The reliability of the instrument was determined using Cronbach's Alpha and is high (α= .86 for 126 items). It is different for each phase of the research. The reliability of the first-cycle instrument is α= .85 (54 items), second α= .89 (42 items), and α= .86 (29 items) for the instrument of the third cycle of research. This paper presents some of the findings of processed data from the first cycle and generated statements of individual research participants.

On the assumption that heterogeneous groups, by using the Delphi method, generate more accurate judgments than experts in homogeneous groups (van der Schaaf and Stokking, 2011), experts of different profiles were gathered in this research. The participants of this research have, in their professional work, an insight into family functioning and children's outcomes or they are involved in family support. The sample is intentional and stratified according to scientific and professional areas. It includes 15 scientists and 19 practitioners, 28 of which are women, and 6 are men. During the research the participants are mutually anonymous (they do not know who are participates in the research). Allowed their identity to be disclosed after the research was finished: Ph.D. Sandra Antulić, National Center for External Valuation of Education, Zagreb; Ivona Beus Riechtenberg, political scientist, EU Parlament; Ph.D. Andreja Brajša Žganec, Institute of Social Sciences Ivo Pilar, Zagreb; Maja Flego, PR, Offices of Ombudsman for Children, Croatia; Ma. Maja Gabelica Šupljika, Offices of Ombudsman for Children, Croatia; Ph.D. Josip Janković, emeritus; Stjepan Lice, Faculty of Law, University of Zagreb; Ph.D. Anka Lozančić, Faculty of Teacher Education, University of Zagreb; Ph.D. Anita Mandarić Vukušić, Faculty of Humanities and Social Sciences, University of Split; Ph.D. Arjana Miljak, emeritus; Ph.D. Branko Rafajac, Full Prof., Faculty of Humanities and Social Sciences, University of Rijeka; Ph.D. Majda Rijavec, Full Prof., Faculty of Teacher Education, University of Zagreb; Ph.D. Edita Rogulj, Faculty of Teacher Education, University of Zagreb; Ph.D. Edita Slunjski, Full Prof., Faculty of Humanities and Social Sciences, University of Zagreb; Ph.D. Vedrana Spajić Vrkaš, Full Prof., Faculty of Humanities and Social Sciences, University of Zagreb; - Ph.D. Adrijana Višnjić Jeftić, Ass.prof., Faculty of Teacher Education, University of Zagreb. The relative majority of the research participants are pedagogues (41.17%, N=14). There were also 8 psychologists (23.52% of the research participants), 2 lawyers, 2 political scientists, 2 theologians, one expert in

education and rehabilitation, one sociologist, one psychiatrist, and one economist. In both subsamples, individual participants have expressed extreme attitudes that could be linked to the area of their activity. The pedagogues expressed their openness to question the attitudes. The theologians have, in both subsamples, expressed and maintained extreme attitudes about individual family functions and educational aspects of family functioning. It is interesting that no participant withdrew from the research, although it was expected that 10% of the participants, those with extreme views, would withdraw their participation (Visković, 2016).

The Delphi method is primarily focused on a joint discussion and qualitative analysis of the research subject matter. Descriptive statistic is usually used for the Delphi method – measurements of central tendency (arithmetic mean/M), deviations (standard deviation/SD) and response dispersion (frequency/f). The estimation direction was analyzed to determine the level of consensus. The existence of a statistically significant difference between the opinions of research participants – scientists and practitioners – was investi-gated by means of a *Mann- Whitney U*. The collected data were processed using the SPSS statistical program/ Statistical Package for Social Sciences 20.0.

3. RESULTS AND DISCUSSIONS

The definitions of family

Some scientists' estimate that it's impossible to unambiguously define the family, which corresponds to the attitude that family *life evolves while is gradually changing, to meet the needs more effectively of the society as a whole and each member of the family* (Haralambos and Holborn, 2002, p. 503). However, considering the current controversy in Croatia on (not) passing the Family Act because of the definition of family, the participants were asked to give an optimal definition of *family*. Following the analysis of recent relevant literature, ten family definitions were provided without reference to the source (to ensure that the participants are neutral according to the sources). It is interesting that the definitions of family indicated in legal documents (such as the Law on Social Welfare, NN, 157/13) were not acceptable to any of the participants. Civil servants included in the sample (N=2) chose to side with the attitude that family is *a close-knit community within the same household, consisting of parents (both or just one) and their non-married children (who are neither legally married nor live in a consensual union), of a man and woman without children or a man and woman who live in a consensual union* (for the needs of the population census, made by the Croatian Bureau of Statistics, 2013).

Most research participants (52.94 %, N=18) as optimal definition of family accept the view that family is primarily an emotional community. It is justifiable to interpret it as a living system, an ideological and symbolic construct determined primarily by specific emotional relationships (Elkind, 1994). One of the participants (a psychiatrist) emphasizes that the family should be the place for emotional stabilization of adults and the area of emotional safety for children. Reflecting on this statement, two pedagogues estimate these are *wishes, but not reality*. Stressing the emotional function of a family also generates the attitude that the family should be accepted as a community of individuals that perceive each other as partners (married, extramarital, heterosexual or homosexual), and who are primarily connected to each other emotionally. This view is aligned with the recent world research (Dempsey, 2013). In total 78.9% of the respondents agree with this statement (M=4.31; SD=0.63). The theologians in both subsamples strongly disagree with this view.

Family functions

After analyzing the family functions, the research participants have assessed (Table 1.) that the most significant family function is the psychological function, upbringing function, and socialization. The patriotic and the religious function of family were singled out as the least significant family functions in Croatia today. At the same time, in social reality of Croatia, the conservative and religious/dogmatic tendencies are increasing which correlates religiousness more to dogmatism than to spirituality. Some organizations advocate defining family solely as a community of heterosexual partners, emphasizing the patriotic and religious functions as primary.

Table 1. The estimation of significance of family functions (for the whole sample)

Family function	min	max	M	SD	S	K
psychological function *	2	6	4.81	0.99	-0.84	0.75
Socialization*	2	6	4.50	1.22	-0.62	-0.31
care and protection of children and young people *	2	6	4.50	1.29	-0.57	-0.08
upbringing function *	2	8	4.50	1.34	0.17	0.16
protective function*	2	6	4.30	1.13	-0.09	-0.49
reproductive function*	2	6	4.15	1.17	-0.06	-0.60
economic function *	2	6	4.09	1.08	0.12	-0.37
educational function *	2	6	4.00	1.16	-0.14	-0.96
living together **	1	6	3.97	1.28	-0.33	-0.18
emotional stabilization of adults **	1	6	3.81	1.38	-0.43	-0.19
moral function	1	6	3.72	1.35	-0.20	-0.44
providing social status *	2	6	3.71	1.24	0.04	-1.01
knowledge transfer **	1	6	3.63	1.29	-0.10	-0.72
tradition transfer *	2	6	3.59	1.16	0.22	-0.52
religious function **	1	6	3.50	1.27	0.25	0.10
biological function**	1	6	3.42	1.39	-0.09	-0.53
cultural function **	1	6	3.31	1.21	0.65	0.57
patriotic function **	1	6	3.31	1.28	0.05	-0.06

As an important family function, the economic function was also singled out. This significance is also recognized in studies that link the economic function of family to educational opportunities of young people and their academic achievements (Johnson and Hitlin, 2017; Swartz, McLaughlin and Mortimer, 2017). At the same time, the economic function should encourage the development of the children's financial competences (Bejaković, 2010; Stegeman and Costongs, 2012).

The response data was tested for normal distribution by using a Shapiro-Wilks test for normality (sample smaller than 50) and appears to be normally distributed (SW= .97; df=33; p= .76) with homogeneity of variance (Levene's test, p> .05).

After analyzing the possible changes in family functions in the future, the research participants have estimated that some family functions (such as: living together, knowledge transfer, and the religious function) will (in next ten years) become less prominent (at least 75% of estimations in the same direction) in future. They emphasize that satisfying biological needs is no longer a reason for starting a family. At the same time, this does not diminish the educational significance of the biological-reproductive function. Children should be taught responsible sexual behaviour in the family and adopt basic life values (Visković, 2013). Unfortunately this does not happen often, especially in dysfunctional families like families where family members are not very attached to each other, in families where parents take on risky sexual behaviours, and in families of lower socio-economic status, so these are the dimensions that become risk factors for the emergence of risky behaviour of young people (Helfrich and McWey, 2014; Kalina, et al., 2011). In social reality of Croatia, according to the available data, in 2017, 2520 intentional terminations of pregnancy were performed, of which 58 were performed on minors, and 122 on girls under the age of 20 (Croatian Institute of Public Health, 2018). Unfortunately, it is possible that this is only partial information because most of the intentional terminations of pregnancy, due to public pressures and praying communities in front of the hospitals, are performed outside hospitals.

The quality of family functioning

Research participants have analyzed the significance of family relationships and the family functioning quality status (Table 2.). The highest significance of the quality functioning families the participants attributed to mutual attachment among family members, emotional, and open communication. As the least significant aspect of the quality functioning families, the participants estimated discipline in terms of complying with the rules, economic status of the family parents' education, and social status of the family. Although the participants expressed doubts concerning the definition of the term, some authors (Miljković, 2010) define discipline as a form of regulation of the child's behaviour (according to self-regulation) as one of the fundamental parental responsibilities and the predictor of the quality of family life.

Table 2. The estimation of significance of family relationships and the family functioning quality status (for the whole sample)

	min	max	M	SD	S	K
Mutual attachment *	3	6	5.58	0.71	-1.96	4.46
Emotional connection between family members*	2	6	5.44	1.04	-2.08	3.79
Two-way, open communication *	3	6	5.42	0.79	-1.34	1.42
Mutual trust *	3	6	5.39	0.83	-1.58	2.51
Clear connection between spouses *	3	6	5.24	0.91	-1.06	0.41
Time spent together *	2	6	5.12	0.99	-1.27	1.80
Cooperative, democratic relationships *	3	6	5.06	0.96	-0.56	-0.83
Self-realization *	3	6	4.97	0.88	-0.51	-0.35
Co-parenting *	2	6	4.97	1.11	-1.27	1.49
A flexible family Structure *	3	6	4.91	0.98	-0.44	-0.81
Flexibility of family roles *	2	6	4.72	1.05	-0.97	1.09
Optimism *	2	6	4.66	1.09	-0.50	-0.39
The existence and adherence to norms *	2	6	4.52	1.18	-0.28	-0.99
Changes in the family structure *	2	6	4.41	1.11	-0.43	-0.23
The autonomy of members *	3	6	4.33	0.92	0.27	-0.62
Social status of the Family **	1	6	3.88	1.14	-0.15	0.43
Economic status*	1	6	3.84	1.27	0.11	-0.45
Parents' education **	1	6	3.82	1.04	-0.13	0.92
Discipline **	1	6	3.81	1.23	0.04	-0.36

* absolute consensus (more than 95% of estimations in the same direction)

** relative consensus (at least 75% of estimations in the same direction)

The response data was tested for normal distribution by using a Shapiro-Wilks test for normality which appears to be normally distributed (SW= .95; df=33; p= .21.) with homogeneity of variance (Levene's test, p> .05).

Individual family life aspects were analyzed as predictors of the quality of family functioning. By applying Men-Whitney U test, no statistically significant difference in the estimation of scientists or practitioners was found, except for the dimension of optimism (p = .02).

According to the practitioners, optimism, as a relatively stable general tendency to expect the best outcome (Talović Vorkapić and Jelić Puhalo, 2016; Tucker, Sharp, Van Gundy and Rebellon, 2017; Widmer, 2016), is a more significant predictor of family functioning than it is considered to be according to the scientists.

The economic status of the family members has been recognized as one of the indicators of the quality of family life, which is in accordance with some studies (Bejaković, 2010; Belsky, 2014). There was also a view according to which *Family functioning is one of the predictors of the development of individual's career*, with which 97% of the research participants agree. This is also documented by the research findings that link the personal experience of success and life satisfaction with quality family functioning and socio-emotional connection between family members (Kovčo Vukadin, Novak and Križan, 2016; Rogošić, 2015).

The educational function of family

Participants also estimated that the educational function of family is a significant family function. In the context of modern society, this function can be analyzed separately – upbringing is interpreted as a permanent family function, while education is more and more taken over by the society. But, if we look at education as a responsible use of knowledge and the development of an individual's potential, it is justifiable to analyze the educational aspects of growing up in a family.

Reliability scale of the assessment of the family's educational function (N of Items=17) is exceptionally high and is determined by the application of Cronbach's Alpha (λ= .91). Kaiser-Meyer-Olkin Measure of Sampling Adequacy (0.79) and the Bartlett's Test of Sphericity (χ^2=657.99; df=136; p< .00) indicate the homogeneity of the scale suitable for factor analysis. By means of the Rotated Component Matrix (Table 3.), two factors were singled out in the extraction: personality building and socialization, which together account for 76.2% of the total variance. These factors can be interpreted as the most important aspects of the educational function of the family.

Table 3. Rotated Component Matrixa

	Component	
	1	2
To encourage socially acceptable behaviours	.89	
To provide quality leisure time	.72	
To provide quality behavioural models	.78	
To encourage the development of emotional competences	.76	
To develop techniques for dealing with stress	.76	
To teach problem-solving techniques	.73	
To enable emotional reflexivity	.72	
To encourage the development and acquisition of work habits	.71	
To transfer values	.67	
To encourage the development of the culture of expression	.65	
To encourage the development of social competences	.61	
To encourage the development of individual potential of children		.87
To enable and encourage the development of personality traits		.81
To encourage the development of self-esteem and self-respect		.86
To encourage socialization		.75
To encourage quality reaching of independence		.74
To ensure emotional closeness		.62

Extraction Method: Principal Component Analysis.

a. Rotation converged in 3 iterations.

Rotation Method: Varimax with Kaiser Normalization

Component Transformation Matrix

Component	1	2
1	.74	.66
2	.66	-.74

After analyzing the aspects of the educational function of family, the participants have estimated the assurance of emotional closeness to be the most important one (Table 4.). If we accept emotional closeness as one of the dimensions of family relationships, then the development of self-esteem and self-respect is, according to the estimations, the most significant goal of family upbringing.

Table 4. The significance of certain aspects of the educational function and emotional closeness (for the whole sample)

items	min	max	M	SD	S	K
To encourage the development of self-esteem and self-respect	2	6	5.51	0.78	-1.43	1.06
To ensure emotional closeness	4	6	5.39	0.69	-1.18	0.52
To encourage the development of emotional competences	4	6	5.33	0.68	-1.28	1.42
To encourage the development of individual potential of children	3	6	5.28	0.95	-1.13	0.54
To encourage socialization	3	6	5,28	0.82	-0.76	-0.58
To provide quality behavioural models	3	6	5,28	0.89	-0.63	-0.77
To encourage quality reaching of independence	3	6	5,28	0.89	-1.23	0.89
To enable and encourage the development of personality traits	4	6	5,22	0.87	-1.28	1.42
To encourage the development and acquisition of work habits	3	6	5,22	0.87	-1.04	0.26
To encourage socially acceptable behaviours	3	6	5.22	0.94	-0.67	-0.97
To encourage the development of social competences	2	6	5.11	0.91	-0.67	-0.56
To enable emotional reflexivity	2	6	5.11	0.91	-0.94	0.19
To teach problem-solving techniques	2	6	4.94	0.98	-0.66	-0.56
To transfer values	2	6	4.78	1.31	-0.76	-0.42
To encourage the development of the culture of expression	3	6	4.72	0.82	-0.34	-0.67
To provide quality leisure time	2	6	4.61	1.09	-0.39	-0.76
To develop techniques for dealing with stress	3	6	4.51	1.04	-0.25	-,966

The response data was tested for normal distribution by using a Shapiro-Wilks test for normality and appears to be normally distributed (SW= .91; df=33; p= .01) with homogeneity of variance (Levene's test, p> .05).

As the most important aspects of the educational function of family, children

achieving independency, the development of individual potentials, socially acceptable behaviours, socialization, and the development of emotional competence were also singled out. Research participants have estimated the transfer and development of gender roles to be the least significant aspects of the educational function of family.

By means of the *Mann Whitney U test*, no statistically significant difference was determined in estimations of the research participants – scientists and practitioners for all subscales (Table 5.). The limit value was perceived in the estimations of importance of family in the development of emotional competences in children and providing quality models of behaviour. Both of the above-mentioned aspects of the educational function of family, practitioners evaluate to be more significant than the scientists.

Through an anonymous discussion, the research participants conclude that each family function has an educational significance in the sense of building personality traits, fundamental values, and responsible behaviours in children.

Table 5. Hypothesis Test Summary (Independent Samples Mann-Whitney U Test)

	range	min	max	M	SD	S	K	sig
∑1	68	32	100	70.91	16.11	-0.10	0.05	.28
∑2	59	49	108	84.26	13.18	-0.63	0.86	.34
∑3	59	43	102	82.84	16.27	-0.88	0.42	.25

∑1= family function score

∑2 = predictors of the quality of family functioning score

∑3 = certain aspects of the educational function score

Asymptotic significances

Exact significance is displayed for this test.

Although there is no statistically significant difference in the estimation of the significance of a family function in the modern society, the predictors of the quality of family functioning and the aspects of the educational function of the family, some participants retained contradictory opinions even after the discussion. Theologians persisted in emphasizing the religious and patriotic functions of the family, diminishing the importance of socio-economic status on the conditions of childbirth and the educational function of the family. Psychiatrists and individual pedagogues emphasize the question of discipline as a family's educational function.

Parenting

After the analysis of family functions, predictors of a quality family life as a reference framework for the educational function of family, the research participants pointed out the importance of parenting quality. Parenting is justifiably interpreted as a concept, rather than an isolated role of an individual. Quality parenting implies knowing and understanding of a child and the creation of optimal responses to their developmental and psychophysical needs (Stegeman and Costongs, 2012). Competent and responsible parents contribute in great measure to the quality of the child's growing up (Belsky, 2014; Zygmunt-Fillwalk, 2011). In order to create a stimulating social environment and achieve high-quality interactions with children, the parent *must activate their personal and external resources in guiding the child through the process of daily maturing* (Ljubetić, 2012, p. 24). All this requires parents' responsiveness.

The starting point of understanding parenting as a skill that is not innate opens space for parental education. Research participants have generated the view that parents need to be involved in some form of education before they become parents (M=4.12; SD=1.01 for the whole sample). This points to the obligation of state policy to initiate education for parents through the educational and social institutions of the system (M=3.94; SD=0.96) for which no consensus was achieved. Research participants (whole sample) estimate that:

- Parental education contributes to the quality of upbringing and education in the family only if the parents are personally, intrinsically motivated for a quality, effective parenting (M=4.18; SD=0.81).
- Quality parenting workshops (as a form of parental education) are useful as an incentive for self-evaluation of personal behaviours (M=4.36; SD=0.78) and are purposeful only if they stimulate the process of working on oneself (M=4.12; SD=0.85).

Participants of this research agree with the view that insisting on parental education would limit the fundamental human rights to freedom of choice. At the same time, they are unsure if the knowledge (that individuals could potentially acquire) would be positively associated with the development of parental competences. Although the attitude of most authors that a quality and responsible parenting can be taught cannot be ignored (Ljubetić, 2012; Petani 2011), Bennett and Grimley (2001) claim that in the contemporary world it is getting increasingly difficult to motivate

parents to participate in education. The lack of interest in the development of parental competences is possibly a consequence of the parents' overburden with existential problems and intensive changes in society.

Through an anonymous discussion, the participants have unanimously concluded that the quality of (extra) marital partnership is not a prerequisite for quality parenting. Some parents, faced with a bad relationship with their partner, develop additional efforts to be good parents. They also emphasize that single parents can be good parents. Unfortunately, recent research shows that single-parent families usually have a difficult economic status, which may have a negative impact on the quality of parenting.

Through an anonymous discussion, a view has been generated that *Institutional childcare for children of early and preschool age organized by companies (corporate kindergartens) can have negative consequences in terms of upbringing in the long run, because this usually means the long-term separation of children from their families.* Ninety seven percent of the research participants agree with this statement. This assumption is in accordance with recent research that links (long-term) exclusion of children from family life with long-term adverse outcomes, especially socio-emotional difficulties (Vendell et al., 2010), and economically disadvantaged family status with dysfunctional parents and poorer achievements of children (Matejević and Đorđević, 2019; Zygmunt-Fillwalk, 2011).

Research participants agree that quality growing up means that early and preschool children primarily need a safe emotional attachment between them and their parents, as well as stable economic status and social inclusion of the family. An appropriate social support and a support from the state can contribute to the quality of parenting and indirectly, the quality of growing up within a family.

4. CONCLUSIONS

Family in Croatia, in accordance with the global social changes, gradually transforms its structure (interpreted as relationships between members), functions by which meets its members' needs and ways of functioning (mutual interactions, ways of spending time together, distribution of power and problem solving). Changes of relationships among family members, dynamics and ways that meet family functions are expected, but they are not linear, casual or time predictable.

It is certain that these dynamic processes shape the conditions of growing up in the family and have an impact on its development, upbringing, and education.

The overview of opinion polls, taken by professionals, on the family in Croatia suggests that there is no consensus on the unambiguous definition of family.

This results in conflicts in the public sphere - the rift of legal determinations, scientific and ideological interpretations. Illiberal tensions are strengthening which is recognizable in the extreme estimations provided by research participants. For example, the family is defined as a community of parents and (biological) children and certain educational aspects of the family are being diminished. However, relative aspects – emotional connection, attachment and communication among family members, have been singled out as the predictors of quality family functioning. The development of personality and socialization of children have been singled out as the most significant aspects of the educational function of family. At the same time, it is emphasized that all family functions have an upbringing and educational impact on children in the sense of transferring knowledge, values, norms, and behaviours.

The family, as a community in the society, is also determined by the culture of that society, social and economic processes, and social norms. Family norms, principles, and behaviours can be different from the society in which the family exists. Although the country is exposed to a long-lasting economic crisis, conservative attitudes are strengthening in Croatia. Research participants estimate that the patriotic and religious functions are the least significant family functions. Theologians in both subsamples retain a controversial attitude. The psychological, social, and upbringing functions of family have been singled out as the most significant permanent family functions. Economic family function, as one of the oldest family functions, becomes a significant predictor of the quality of parenting and children's outcomes. Interestingly, for most of the topics of joint discussion, there was no statistically significant difference found between the research participants – scientists and practitioners.

This study did not cover all family processes (such as the problem of abuse in the family) or any of the family policies defined by government (such as social security

means). Nevertheless, basic family settings and upbringing and educational aspects of growing up in the family have been pointed out. A society geared towards democratic development, respect for the rights of the individual and the long-term welfare of the children should recognize the importance of quality family functioning. An insight into the real quality of family functioning in Croatia would only be possible by conducting a longitudinal study on a stratified sample of all family structures.

ACKNOWLEDGEMENTS

This artical is part of the preparatory research of scientific project „Empowering a family to develop positive relationships and family coherence /uniri-drustv-18-6/1132zlokovic" , with support of the University of Rijeka.

The authors are grateful to all participants of the research for their selfless support. By participating in the anonymous group discussion, participants expressed and arguments from different points of views. Their openness within the discussion has contributed to understanding the current functioning of families in Croatia.

Conflict of interests

The authors declare no conflict of interest.

REFERENCES

Amato, P. R. (2012). The well-being of children with gay and lesbian parents. *Social Science Research, 41*, 771-774. https://doi.org/10.1016/j.ssresearch.2012.04.007

Bejaković, P. (2010). *Osobna prezaduženost*. [Personal over-indebtedness]. Zagreb: Institut za financijska istraživanja

Belsky, D., Caspi, A., Arseneault, L., Bliedorn, W., Goodman, M., Houts, R., & Moffitt, T. (2012). A test of diathesis-stress theories of the etiology of borderline personality disorder in a birth cohort of 12 year old children. *Development and Psychopathology, 24(01)*, 251-265. https://doi.org/10.1017/S0954579411000812

Belsky, J. (2014). Social-contextual determinants of parenting. In R.E. Tremblay, M. Boivin, & R. De. V. Peters (Eds.), *Encyclopedia on Early Childhood Development* [online], Montreal: Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development. http://www.child-encyclopedia.com/parenting-skills/according-experts/social-contextual-determinants-parenting

Bennett, J., & Grimley, L. K. (2001). Parenting in global communitty: A cross - cultural international perspective. In M.J. Fine & S.W. Lee (Eds.), *Handbook of Diversity in Parent Education* (pp.97-132). Accademic Press. https://doi.org/10.1016/B978-012256483-3/50006-X

Croatian Bureau of Statistics (2013). *Popis stanovništva 2011.* http://www.dzs.hr/Hrv/censuses/census2011/censuslogo.htm

Croatian Bureau of Statistics (2018). *Migracije stanovništva Republike Hrvatske u 2017.* [Migration of the Croatian population in 2017]. https://doi.org/10.1055/s-0038-1641696

Croatian Bureau of Statistics (2018). *Pokazatelji siromaštva i socijalne isključenosti u 2017.* [Poverty and social exclusion indicators in 2017]. https://www.dzs.hr/Hrv_Eng/publicatio/2018/14-01-01_01_2018.htm

Croatian Institute of Public Health (2018). *Izvješće - Pobačaji u zdravstvenim ustanovama u Hrvatskoj u 2017.* [Report - Abortions in Health Care Facilities in Croatia in 2017] https://www.hzjz.hr/periodicne-publikacije/izvjesce-pobacaji-u-zdravstvenim-ustanovama-u-hrvatskoj-u-2017/

D'Addato, A. (2010). *Promoting prevention and early intervention, Eurochild's contribution.* The Federal Foundation Mother and Child for pregnant women in emergency situations, Germany. http://www.eurochild.org/fileadmin/Communications/08_Articles%20about%20and%20by%20Eurochild/2010/Todays_Children_are_Tomorrows_Parents_Dec2010.pdf

Dempsey, D. (2013). *Same-sex parented families in Australia.* Melbourne: Australian Institute of Family Studies. http://www.mengage.org.au/MENGAGE/media/MediaLibraryOne/cfca18.pdf

Elkind, D. (1994). *Ties that stress: The new family imbalance*. Cambridge. MA: Harvard University Press.

European Commission (2018). *Education and Trainig Monitor.* https://ec.europa.eu/education/policy/strategic-framework/et-monitor_en

Eurostat Statistics Explained (2018). *People at risk of poverty or social exclusion.* https://ec.europa.eu/eurostat/statistics-explained/index.php/People_at_risk_of_overty_or_social_exclusion

Green, R.A. (2014). The Delphi technique in education research. *SAGE and Open Access page, 4(2)*. http://journals.sagepub.com/doi/pdf/10.1177/2158244014529773

Haralambos, M., & Holborn, M. (2002). *Sociologija: Teme i perspektive.* [Sociology: Topics and Perspectives]. Zagreb: Golden marketing.

Helfrich, C. M., & McWey, L. M. (2014). Substance use and delinquency: High-risk behaviors as predictors of teen pregnancy among adolescents involved with the child welfare system. *Journal of Family Issues, 35(10),* 1322-1338. https://doi.org/10.1177/0192513X13478917

Johnson, M. K., & Hitlin, S. (2017). Family (dis) advantage and life course expectations. *Social Forces, 95(3)*, 997-1022. https://doi.org/10.1093/sf/sow094

Kalina, O., Geckova, A. M., Klein, D., Jarcuska, P., Orosova, O., van Dijk, J. P., & Reijneveld, S. A. (2011). Psychosocial factors associated with sexual behaviour in early adolescence. *The European Journal of Contraception &*

Reproductive Health Care, 16(4), 298-306. https://doi.org/10.3109/13625187.2011.586076

Kovčo Vukadin, I., Novak, M., & Križan, H. (2016). Zadovoljstvo životom: individualna i obiteljska perspektiva. [Life satisfaction: individual and family's perspective]. *Kriminologija & socijalna integracija: časopis za kriminologiju, penologiju i poremećaje u ponašanju, 24(1)*, 84-115. https://doi.org/10.31299/ksi.24.1.4

Law on Social Welfare/ *Zakon o socijalnoj skrbi*. Croatia. Narodne novine, 157/13.

Ljubetić, M. (2012). *Nosi li dobre roditelje roda?!: odgovorno roditeljstvo za kompetentno dijete*. [Does the stork carry good parents?!: Responsible parenting for a competent child]. Profil.

Matejević, M., & Đorđević, M. (2019). Par enting style in the context of the conflict between parental and business roles. *International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE), 7(1)*, 51-61. https://doi.org/10.5937/ijcrsee190105M

Miljković, D. (2010). Induced stressful situation and success in solving simple mathematical tasks. *Odgojne znanosti, 12(2)*, 283-296. https://hrcak.srce.hr/68273

Ministry of Science and Education (2019). *Dječji vrtići, popis. [List of kindergartens]*. http://mzos.hr/dbApp/pregled.aspx?appName=Vrtici

Olson, D. (2011). FACES IV and the circumplex model: Validation study. *Journal of marital and family therapy, 37(1),* 64-80. https://doi.org/10.1111/j.1752-0606.2009.00175.x

Petani, R. (2011). Odnos roditelj - dijete. In D. Maleš (Ed.) *Nove paradigm ranogodgoja.* [New paradigms of early care and education] (pp. 97-124). Zagreb: Filozofski fakultet Sveučilišta u Zagrebu, Zavod za pedagogiju.

Rogošić, S. (2015). Životno zadovoljstvo budućih odgojitelja: utjecaji socijalnog, ekonomskog i ljudskog kapitala obitelji. [Life satisfaction of future educators: the impacts of family as social, economic and human capital]. *Napredak: časopis za pedagogijsku teoriju i praksu, 156(3)*, 233-252. https://hrcak.srce.hr/166177

Stegeman, I., & Costongs, C. (2012). *The Right Start to a Healthy Life: Levelling-up the Health Gradient Among Children, Young People and Families in the European Union-What Works?*. Euro Health Net. http://eurohealthnet.eu/sites/eurohealthnet.eu/files/publications/right-start-healthy-life-levelling-up-health-gradient-children.pdf

Swartz, T. T., McLaughlin, H., & Mortimer, J. T. (2017). Parental assistance, negative life events, and attainment during the transition to adulthood. *The Sociological Quarterly, 58(1)*, 91-110. https://doi.org/10.1080/00380253.2016.1246898

Tatalović Vorkapić, S., & Jelić Puhalo, J. (2016). Povezanost osobina ličnosti, nade, optimizma i zadovoljstva životom odgojitelja predškolske djece. [Correlation between personality traits, hope, optimism and life satisfaction of the preschool educators]. *Napredak: časopis za pedagogijsku teoriju i praksu, 157(1-2)*, 205-220. https://hrcak.srce.hr/177231

Tucker, C. J., Sharp, E. H., Van Gundy, K. T., & Rebellon, C. J. (2017). Household chaos, relationships with parents and adolescents' future beliefs. *Journal of Family Studies, 23(3)*, 229-242. https://doi.org/10.1080/13229400.2015.1090327

van der Schaaf, M. F., & Stokking, K. M. (2011). Construct validation of content standards for teaching. *Scandinavian Journal of Educational Research, 55(3),* 273-289. https://doi.org/10.1080/00313831.2011.576878

Vandell, D. L., Belsky, J., Burchinal, M., Steinberg, L., Vandergrift, N., & NICHD Early Child Care Research Network. (2010). Do effects of early child care extend to age 15 years? Results from the NICHD study of early child care and youth development. *Child development, 81(3),* 737-756. https://doi.org/10.1111/j.1467-8624.2010.01431.x

Visković, I. (2013). Međugeneracijski prijenos vrijednosti s roditelja na djecu adolescente u općini Tučepi. . [Intergenerational transfer of values from parents to adolescent children in Tučepi municipality]. *Školski vjesnik: časopis za pedagogijsku teoriju i praksu, 62(2-3)*. https://hrcak.srce.hr/105323

Visković, I. (2016). Mogućnosti primjene Delfi metode u pedagogijskim istraživanjima. [Possibilities of applying the Delphi method in pedagogical research]. *Napredak: časopis za pedagogijsku teoriju i praksu, 157(1-2),* 187-204. https://hrcak.srce.hr/177230

Watzlawick, P. (1993). *The language of change: Elements of therapeutic communication*. WW Norton & Company.

Widmer, E. D. (2016). *Family configurations: A structural approach to family diversity.* Routledge. https://doi.org/10.4324/9781315581903

Zygmunt-Fillwalk, E. (2011). Building family partnerships: The journey from preservice preparation to classroom practice. *Journal of Early Childhood Teacher Education, 32(1)*, 84-96. https://doi.org/10.1080/10901027.2010.547653

CYBERBULLYING IN THE LIGHT OF CHALLENGES OF SCHOOL-BASED PREVENTION

Dr. Łukasz Tomczyk, Pedagogical University of Cracow, Poland
E-mail: tomczyk_lukasz@prokonto.pl
Dr. Anna Włoch, Pedagogical University of Cracow, Poland
E-mail: anna.wloch@up.krakow.pl

ARTICLE INFO

Original Research
Received: September, 21.2019.
Revised: October, 29.2019.
Accepted: November, 23.2019.
doi: 10.5937/IJCRSEE1903013T

UDK
37.06:364.636(438)
316.624-057.874:004.738.5(438)

Keywords:
cyberbullying,
prevention,
Poland, teachers,
school,
teachers,
parents.

ABSTRACT

The main goal of the paper is to present opinions about cyberbullying prevention in Poland in the light of teachers' experiences. The authors show the current state of knowledge of electronic aggression and cyberbullying among the youths. They also present an overview of the difficulties educators face, the challenges and expectations of kids and youth regarding media prevention, as well as challenges related to the effectiveness of the modern, innovative prevention of risky behaviours. The study was conducted in the Pedagogical University of Cracow, in the first half of 2019, using a focus group method. The results provide new guidelines and findings which may be valuable for school practice and media pedagogy. The interviewed teachers declared that the effectiveness of the hitherto implemented preventive activities varies. They declared their need to develop their own digital literacy and were willing to participate in trainings focused on the practical aspects of anticipating cyberbullying and solving difficult cases (e.g. related to sexuality, image protection or attacking teachers via the Internet). The respondents admitted the necessity of joining efforts with police and local community institutions when solving the cyberbullying-related problems.

1. INTRODUCTION

Cyberbullying is a constantly noticed challenge in Europe. This is proved by the number of young people with experience in this area. For example, 16.05% of Spanish adolescents have experienced occasional or severe cyberbullying (Del Rey et al., 2015). Studies conducted by Czech researchers from Olomouc show much greater percentage of almost 50% (Kopecký and Szotkowski, 2013). Because aggression and cyberbullying have different victimisation (hurting) potential, we need to clearly discern between certain oppressive behaviours young people face online. For example, according to the EU KIDS Online study, during the 12 months prior to the study, young Poles aged 9-17, had experienced the following forms of cyberbullying and electronic aggression (Pyżalski et al., 2019): I received unpleasant or mean messages (e.g. words, graphics, photos or videos) 8.7%; I was removed or banned from a group or some Internet activity 5.5%; I experienced other unpleasant incidents when online 5.0%; Someone sent out or posted somewhere unpleasant or mean messages about me (e.g. words, graphics, photos or videos) so that others could see them 4.9%; Someone threatened me in the Internet 4.9%; I was forced to do something I did not want to do 2.0%.

Based on the study conducted in eight European countries (Bulgaria, Cyprus, France, Greece, Hungary, Italy, Poland, and Spain), it was observed that both, being a victim and a bully, is the most common in Bulgaria and Hungary and the least common in Spain. In all the studied countries, boys engage in behaviours classified as cyberbullying more often than girls. The scale of the activities defined as cyberbullying experience in these countries is from several to a dozen or so percent, depending on the type of cyberbullying (Flaming, Denigration, Impersonation, Outing, Exclusion)

Corresponding Author
Dr. Łukasz Tomczyk, Pedagogical University of Cracow, Poland
E-mail: tomczyk_lukasz@prokonto.pl

(Sorrentino et al., 2019). Other, comparative studies in Europe confirm the changing nature of cyberbullying, depending on the definition adopted (Athanasiou et al., 2018). However, we need to emphasise at the very beginning that the scale of the phenomenon changes also due to different methodological assumptions (construction of questions, narrowing down the timeframes of experiencing and exercising cyberbullying, definitions of aggression and cyberbullying). Cultural context, intervention and anticipation strategies are also important factors that differentiate the scale (Barlett et al., 2013).

Today, schools face new and classic threats resulting from the computerisation of our daily life. Cyberbullying is one of the challenges, which for over a decade has been the focus of the researchers and practitioners. Preventions and intervention related to cyberbullying is one of the common challenges among pedagogues - practitioners. Analyses performed among both, students and teachers show the crucial role of teachers in solving the problems mediated by the Internet. But educators use diverse intervention strategies which depend on the type of school, stage of education, digital literacy level, experience or type of cyberbullying. Based on these research, we can notice that there is quite a large group of parents, children and youths who, when facing e-threat to their security, ask teachers for help in the first place (Giménez-Gualdo et al., 2018). It is also indisputable that both, researchers and practitioners refer to education as the necessary element to stop cyberbullying and a base to mitigate serious negative physical and psychological consequences this type of e-threats leaves with the victims. Online safety education and educational programmes about cyberbullying prevention have become necessary for today's schools. Introduction and implementation of effective curricula requires not only complex knowledge of cyberbullying but also expertise and competences in the field of media education (Marzano, 2019). For this reason, the study presented herein assumes that knowledge and experience of the teachers are the base to learn the modern aspects of media prevention related to cyberbullying in Poland.

Because of different definitions of cyberbullying, the analysed phenomenon should be first clearly defined. Cyberbullying is defined as aggressive behaviours or actions performed using electronic means or information and communication technologies (ICT), initiated by a group or an individual against a victim whose ability to defend themselves is limited. What differs cyberbullying from violence exercised offline is the fact, that in case of cyberbullying the perpetrators can usually stay anonymous and there are no territorial and time limitations (Rębisz, Sikora, and Smoleń-Rębisz, 2017). Cyberbullying is considered one of the signs of aggression. Cyberbullying is an intentional activity to cause harm or suffering (Frankowiak, 2018).

The recent analysis of the international research network EU KIDS Online shows that the more traditional aggression have young people experienced from their peers, the more often they were also the victims of electronic aggression (Pyżalski et al., 2019). Both, qualitative research and meta-analyses confirm that individual traits and socio-family conditions are the important cyberbullying factors. The strongest risk factor related to cyberbullying is intimidation in school, that is, offline aggression experienced from peers (Baldry, Farrington and Sorrentino, 2015). School, or rather peer environment in school, becomes the main arena of cyberbullying behaviours. There are different ways to minimise the cyberbully-ingrelated risky behaviours. One of them is total ban on using mobile phones in a school. According to some researchers or politicians (e.g. in France), these restrictions is crucial in eliminating cyberbullying and, at the same time, dealing with risky behaviours in schools, mediated by new median (Kaimara et al., 2019). However, restrictive prevention raises many objections related to education (Oliveira, Cunha and Soares, 2019). In opinion of many researchers, it is much more beneficial to educate how to use Internet and phones in a constructive way rather than exclude new media from the school life. Developing positive habits and showing the potential of the new media is one of the components of smart media prevention (Panckhurst and Cougnon, 2019).

Jacek Pyżalski points out that an effective media prevention programme should follow several principles which are important in educational practice. Programmes should be integrated with other educational activities addressing also the traditional violence. Addressing electronic aggression and cyberbullying only has no rationale as in most cases peer aggression online and offline has common grounds. Pyżalski also mentions the fact that many preventive solutions are universal and they translate into reduction of both types of peer aggression/bullying. Thus,

by engaging in programmes to reduce the offline violence, teachers at the same time contribute to the decrease of online aggression. The meta-analyses also revealed that implementation of media prevention requires something more than standard educational activities (like instructional methods). Rather than moralise, workshops with children and youths should focus more on developing their knowledge of the nature of media communication and online relationships. A strategic element in reducing cyberbullying is the inclusion of the salutogenic elements – the opportunities paradigm of media pedagogy, showing how to use ICT constructively (Pyżalski et al., 2019).

The research results suggest clearly that teachers who think they can stop cyberbullying intervene more often when it happens and create activities to minimise this phenomenon. It is also noticeable that the sense of self-effectiveness in the analysed area is connected with teachers' engagement in educational interventions in the past. The effective prevention in schools emphasises increasing teachers' confidence during interventions and their preparation based on exchange of experience, cyberbullying case analyses and solving this type of problems as they occur (Fischer and Bilz, 2019). Implementation of effective curricula requires teachers read the recent subject matter literature, invest in their professional development (e.g. by participating in conferences, courses, online trainings) and improve their digital literacy. Based on the analyses conducted in nine European countries, it was observed that the sources of cyberbullying are particularly connected with the patterns of using ICTs, lack of media literacy and media education, as well as lack of adequate regulations to monitor the risky behaviours in the Internet. According to teachers and experts, their professional group is considered to play a significant role in minimising cyberbullying, however they emphasise their need for ongoing educational and organisational support to increase digital safety among students but also parents and teachers themselves (Jäger et al., 2010). Education to improve the effectiveness of cyberbullying preventions and develop digital literacy has become obvious in the rapidly developing information society.

2. MATERIALS AND METHODS

Research objective

The objective of the study was to provide a holistic view on digital safety among children ad youths in the context of prevention of cyberbullying in schools. Given that hitherto studies into cyberbullying and electronic aggression lack teachers' perspective, we have identified the following research problems:

1. What cyberbullying prevention programmes have the teachers participated so far?
2. What kind of difficulties in implementation of cyberbullying prevention among children and youth do teachers face?
3. What are the needs and expectations of children and youths related to teaches' knowledge about digital safety in the context of cyberbullying?
4. What are the challenges connected with cyberbullying prevention?

Due to the dynamically changing conditions related to digital safety in the context of education (Tomczyk, Potyrała, 2019), this study is not only a basic study but it will also be used to design some practical solutions. The analyses were conducted as part of the project SELI - Smart Ecosystem for Learning and Inclusion - ERANet17/ ICT-0076 SELI (cofinanced by the National Centre for Research and Development) the purpose of which is to create an international e-learning platform to support teachers from Latin America and Europe in developing effective solutions to prevent cyberbullying. The data obtained will serve to update the present resources addressed to educators involved in cyberbullying preventions in the school environment.

Research procedure and sampling

Providing answers to the research questions was possible thanks to pedagogical qualitative study. For this purpose, the method of focus group was applied. It took place in the first half of 2019, in Poland. The sample consisted of 11 persons (postgraduate students of Administration and Management in Education, studying in the Faculty of Pedagogy of the Pedagogical University of Cracow). There were 9 females and 2 males. Most of the respondents were teachers (kindergarten, preschool education, math, history, family life education, physical education, English, Polish and geography). The sample included also an economist (specialising in finance and banking), a philosopher and a teacher of

children with intellectual disabilities. Almost half of the respondents held two university degrees (pre-school and early school education and history, pre-school and early school education and English, pre-school and early school education and philosophy, pre-school and early school education and Polish, physical education and geography). One of the respondents had three degrees (history, pre-school and early school education, education of children with intellectual disabilities). The age of the group was 30-46 years. Most of the teachers worked as appointed and chartered teachers (second and third out of four degrees of professional promotion) in kindergartens, primary schools (also with integration classes) and secondary general and technical schools. The study took 50 minutes. The procedure was compliant with the assumed methodology and research ethics (Vaughn, Schumm and Sinagub, 1996).

Data analysis

The interviews were transcribed and then analysed in terms of meaning. For this purpose the following methods were used: coding, data reduction and interpretation of meaning were used. Coding and categorisation are the basic techniques used to organise the research material. All the answers were processed by assigning basic words to the pieces of statements, which enabled conceptualisation during the next stage. During the categorisation, reduction of meaning was applied – the selected statements were reduced (for example those covering wider areas than the research problem or repetitive). The interpretation of the interviews is presented in the discussion part (Kvale, 2010; Kvale and Brinkmann, 2009). The study was conducted within the normative paradigm of the pedagogical qualitative research.

The normative paradigm allows the presentation of the educational processes in the perspective of the subjective, individual feelings, that is, the way teachers interpret a specific reality, the characteristics they assign to it. Knowledge obtained in this way aligns with the goals, ideals and values of the education, and helps to discover what needs to be changed in order for the education process (in this case media education) to run properly (Czerwiński, 2011).

3. RESULTS

Participation in cyberbullying prevention programmes

All the respondents declared they knew popular cyberbullying prevention programmes (like "Safety+") but the most popular form of prevention in this area they had encountered were special meetings organised by the police. Most of the respondents took part in regular meetings addressing the issues of cyberbullying, organised by the police or city guards (most often, it was an annual meeting for all the students and teachers from a given school). The most often addressed topics were legal issues related to the consequences of cyberbullying (publishing photos/image online without a person's consent and the consequences of such actions). Certain threats were discussed based on real case studies (e.g. a student trying to commit suicide because his compromising photos have been published in the Internet, the consequences for the persons responsible for sharing the photos). One of the respondents added:

During the meetings, we also discussed the cases of suicidal attempts, successful or not, which went viral.

The respondents definitely appreciated the trainings led by the police more than their own activities undertaken during the classes. According to one of the respondents:

Usually, during the general education classes, at least in my opinion, the teacher says something and the students get bored. They are much more impressed if a police officer comes in his uniform and tells them about his real experiences, specific cases of real people and the consequences. Then of course, they [the students] sit and listen, and they are surprised. I think the class is much less effective [when you discuss cyberbullying] than when they meet with an expert. The respondents said these type of meetings with the police officers should be organised more often in schools.

They also pointed out to the necessity to address the issue of anonymity in the Internet and the irreversible nature of some actions, as one of the risks of global communication. The respondents try to address these issues as often as possible (not only during the general education classes). They often discuss (especially with primary students but often also in the secondary schools) the online savoir vivre (what should we post in the Internet and what should they avoid, making them aware that there is no such thing as anonymity in the Internet). One of the respondents added:

We have been recently talking much that there is no such thing as anonymity. The truth is, you can always find the author. They [students] think they know better, they know everything.

Difficulties in implementation of cyberbullying prevention among children and youth

The main problem with cyberbullying prevention mentioned by the respondents is the age barrier between the students and their parents and teachers. Today's students but also younger children is the generation who has been growing up using telecommunication technologies every day. They are fluent users of different devices and software, but they lack the awareness of the threats connected with the daily use of the Internet. The students do not understand that there is no "temporary photo sharing", that every action and every user can be identified. The respondents pointed out the fact that children, especially younger ones, do not understand what is Internet/smartphone/computer addiction. One of the respondents noticed: *it is even worse because parents lack this awareness too.*

Sometimes parents learn about this types of addictions during meetings in schools and kindergarten. Often they do not know what purposes their children use the Internet for. Another respondent said:

student sit locked in their bedrooms, in front of their computers till late in the night or even morning... Sometimes I can see they log into the electronic log at, for example, 2:55 am. And I wonder what do they do at that time. Why don't they sleep? Parents often neglect that.

According to the respondents, parents are not aware how much time their children spend using their computers and how they use the Internet (especially older primary and high school students). In the opinion of teachers, parents often ignore their responsibilities towards children. The teachers also see the risk of Internet addiction among the students as they observe how much active they are online.

Cyberbullying-related issues are most often discusses during the general education classes and the respondents treat them as a priority. One of the teachers added that the so called general education classes are not very effective when it comes to cyberbullying prevention. Special meetings organised for the whole school community and led by specialists, like police officers, are much more effective, as students learn about the certain, real-life cases and the consequences of such actions. Cyberbullying is also addressed during the family life education classes. One of the respondents stated:

Family life education classes provide many opportunities to talk about it. Sometimes life brings specific problems and we are forced to discuss them with the students, take certain actions.

Needs and expectations of children and youths regarding cyberbullying issues

When asked what is the most common type of electronic aggression they had encountered, all the teachers agreed it was: ridicule, mocking, mean and offensive comments towards specific persons, sharing photographs, processing photographs, publishing memes (using someone's image). On of the respondents noticed that students quite often write offensive comments about their friends' parents. Most often, the students report the facts of publishing pornography. However, they treat this type of activities as fun, they are not aware of the consequences, also legal, they entail. The respondents also described certain, witnessed examples of cyberbullying among their students (publishing a photo of a naked students as an exgirlfriend revenge, reporting the case to the police, confiscating the phones from the students). The teacher added:

We've had this kind of situation twice [the problem of pornography in the Internet]. First: it had spread very fast among the students, it was really farreaching. A boy posted the photo of a naked girl. We reported the case to the police and students had an opportunity to experience this type of intervention themselves. Phones were confiscated because they were sending this out via some applications, claiming it was only for a moment. Fifteen people got their phones confiscated for a month, they were at the police station, in the court. The boy who took the photo and posted it had to bear some serious consequences.

Another respondent recalled her own experience when her students reported to her that a photo of a naked student had been published and it spread out in the school immediately, and the student, shocked, run away from the class. According to the respondent, the key response in this situation was to provide psychological support for the student and then public punishment for the perpetrators.

Asked, how can they deal with cyberbullying experiences, the respondents answered that, apart from raising students' awareness through talks or mini lectures, it is important to raise awareness among the parents (education of parents) and provide them with information about cyberbullying. The respondents said parents are not aware of the scale of the phenomena. One of them pointed out:

A student who is not controlled, does not feel someone is watching them, feels they can get away with it, feels free. From my observation at least, I can see that when students know there is a problem and the teacher informs their parents right away, they feel controlled and are not so brave. They feel the "whip" over them.

According to the teachers, not only talking to the students about the improper behaviours is important but also showing them the legal consequences of the certain actions, condemning these actions, informing parents and, when needed, law enforcement authorities. It is important that teachers do not underestimate any sign of cyberbullying. The respondent said cyberbullying is sometimes ignored by the parents. One of the respondents said:

There was a mother who was called by the teacher during an open day and she told the management: "I have come because my son wrote this but it is nothing wrong". She did not see any problem... If she ignores such an act, then next time her son will publish, for example, some photos and she will not see anything wrong in it either.

According to the respondent, neglecting cyberbullying by some parents is the additional obstacle to prevention activities in this area.

The teachers said that today's parents throw the responsibility for educating their children on the school, especially regarding the competencies enabling safe use of the Internet. When a cyberbullying issue is reported, parents first go to the school management and expect the school will solve the problem. The respondent emphasised:

Parents very often expect the school to solve different problems and conflicts, or investigated who, for example, set up a fake Facebook profile and is bombing their kid with some information. She said that when parents find out they should report it to the police, they withdraw and do not want to exercise their rights, they try to keep everything quiet.

The teachers also said that they quite often see that students who fell victims of cyberbullying (online harassment) do not cope emotionally with this problem and struggle with various psychical problems. Another respondent gave the example of her former student (at that time in the third grade) who set up a fake account in a dating portal (for adults) and told her friends in the class she had a boyfriend. It was thanks to the intervention of the teacher (reporting it to the school director and the parents) that it became clear the the students (10 years old) was interacting with an adult man. The parents were completely unaware of what their daughter was doing online. The respondents added:

I was alarmed by the students' conversation. Luckily, it is a third grade and kids have quite a big trust to the teacher and tell the truth. I immediately notified the director and parents. And the parents did not know anything.

One of the pre-school teachers said that their institution organises regular meetings for the parents to raise awareness regarding the threats resulting from the excessive use of the Internet and devices like smartphone or tablet by the pre-schoolers. For this respondent it was very important that for the parents using the Internet by their children is not only the matter of entertainment.

First of all, we teach the parents that they are responsible for this. Because if we teach children from the very beginning to look for all the entertainment online, in their laptops or tablets instead spending time with their parents, they will quickly get access to inappropriate, dangerous content.

The respondents all agreed that they feel responsible to teach the parents but they would gladly use some e-learning trainings in the area of cyberbullying prevention. And because information technologies develop so rapidly, teachers do not keep up with those changes. E-learning is also a perfect form of training for the teachers who, due to their multiple duties, can only learn in their free time.

Some respondents critically viewed the functioning of contemporary families. The pointed out that due to the lack of the free time and for their own comfort, parents let the children watch TV or use the Internet, without controlling what they actually watch. One of the teacher added that:

Today parents work. We cannot blame them for the wrong intentions. Because they often work and there is also no protection. There is special software to protect children but kids are so smart and intelligent now that they can remove the blockades. If not them,

a friend from their class will do it. In such cases, said the respondents, different social campaigns, local or nation-wide, would help.

They said that students who had experienced cyberbullying first come to their teachers whom they trust. Sometimes they are afraid how their parents might react, therefore they seek help with the teachers they trust. Much more seldom they ask school counsellor or psychologist. Counselling or psychological support is offered only when needed. It is teachers they turn to with their problems who decide how to solve the problem or if they should ask for psychological help.

As for students' responses to the different types of cyberbullying, the respondents agreed they depend on the emotional maturity. Ridiculing or offensive comments are the most common online activities among the students. Sometimes these behaviours trigger extremely different reactions in the victims. They depend mainly on the psychical condition of a student.

Given the effectiveness of the methods of working with cyberbullying victims, the respondents pointed out the necessity to address these issues by the teachers of all the subjects and to organise special meetings with the police officers. One of the respondents suggested organising the so called "organisational assemblies" in schools when the students who were engaged in cyberbullying would receive public reprimand. Many teachers still gives the priority to the methods of public condemnation of the given risky behaviours.

The most difficult case of cyberbullying the respondents had encountered was spreading racist, anti-German content by one of the students. After the police intervention (confiscated phone), the student plead guilty because he was afraid of the consequences he had not been aware of before. Another example was a failed suicidal attempt by a student whose naked photographs were published online by one of her school friends.

The respondents admitted that they experience cyberbullying against the teachers quite often. The most common are processed photos and animations using teachers' image. Sometimes there are very offensive, negative comments regarding the school or teachers, posted on the official city webpages (e.g. miasto.info). Most often, these cases are reported to the school management by the teachers themselves.

The interviewed teachers emphasised that they would like the trainings in cyberbullying prevention to be led by different persons and institutions. One of the respondents added: *every form of talking about it is good. The more we talk about it, the greater awareness among the students, mainly of the consequences [of cyberbullying] in this area. And this is good. Whether it is a police officer or a representative of an organisation, it does not matter that much. Only so the students participate and listen.*

For the respondents, the biggest problem is that students lack the awareness of the consequences of their actions. They emphasised they do not understand that even deleting the previously published content does not solve the problem because it still remains in the Internet. It is important to adjust the content presented during the talks/trainings to the level of the development of the students.

Another important issue mentioned by the teachers was the necessity to sensitise the children to carefully select the photos they post online. The purpose of such meetings is the prevention of different forms of cyberbullying. The respondents were concerned the most about the lack of awareness among the students, regarding the consequences of cyberbullying. One of the respondents (a high school teacher) said:

students have practically no awareness of the legal consequences [of cyberbullying]/ They do not realise what danger they are in.

As for the trainings and workshops for students, one of the respondents had an idea to invite people who work daily using the Internet, for example gameplayers, youtubers or public persons whom the students know and respect. Sharing their experience with the students would be of particular value. Another group should consist of police experts dealing with cybercrimes.

The respondents agreed that they do not feel well prepared to work with children-cyberbullying victims. They expect more training in this area for, both teachers and students (organised by city, municipality authorities, police and NGOs). They said that information about the legal consequences of inappropriate use of online applications would be particularly useful. One of the participants admitted she feels less conscious Internet user than her students (a generational barrier) and therefore, she feels unprepared to implement the cyberbullying preventive methods.

Cyberbullying prevention programmes – disadvantages

The respondents did not have positive opinions about the forms of training related to cyberbullying prevention. Often, these

meetings were only limited to a short lecture or presentation and the speakers were not able to draw students' attention to a given problem. Thus, it is important that this type of classes were prepared by competent persons and the form presentation was accessible, attractive and relevant. Only this way one can reach the young generation. The teachers declared they knew popular cyberbullying prevention progammes. One of the respondents evaluated highly the initiative by the local government in Myślenice, titled "stop hate" (cyclic meetings, talks in schools combined with the local social campaign).

Another weakness of this type of programmes is that they are occasional. According to the respondents, such meetings and talks for students and teachers should be held on regular basis. As organisers, the respondents pointed out to police officers who are respected by the students. As for the content, the respondents think that theory should be minimum. The best form is the analysis of certain, actual examples of cyberbullying. This form works best with students' imagination, said the respondents. Another good idea would be to organise such trainings for the parents.

The elements which need improvement in the cyberbullying prevention programmes are: 1) obligation to cover certain subjects during the general education class; obligatory participation in open lectures delivered to the whole school, most often as a response to a particular incident (lack of planned preventive actions), 2) trainings led by incompetent persons who use the language students cannot understand and who are not able to engage students in the topic, 3) necessity to introduce trainings for the parents who are the least aware of the threat.

The advantages of the prevention programmes: 1) raising awareness of students and teachers in this area, 2) meetings organised by the police are the most effective, 3) comprehensive approach to the trainings which are addressed to students and teachers.

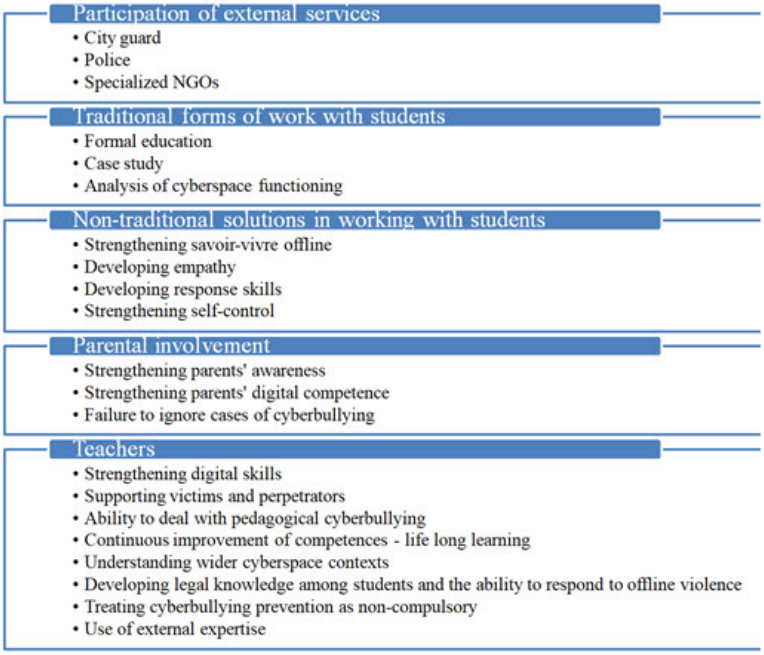
All the respondents agreed that due to different scales of the different forms of cyberbullying, it is necessary to implement complex preventive action, raise awareness among the students and teachers but also among the parents. It is also very important to adapt the content to the stage of development (different issues discussed with the pre-schoolers than with children in grades I-III, IV-VIII and in secondary schools). Preparation of the classes is of a great importance too. They should be attractive and the person teaching should be competent and able to engage the students. One of the teachers added:

cyberbullying never shows up in a child, and other people, in a day. This is a process. So, something had to happen. Most often, a child is excluded from a peer group and wants to be seen. And either he or she finds someone weaker to mock or a weaker teacher whose photo will get manipulated. For sure, children are not completely aware they will bear legal consequences.

The respondents have certain expectations regarding e-learning trainings for teachers/parents: 1) sharing materials which could be used during classes (analyses of specific cases with legal consequences), 2) the list of frequently asked questions and answers; ready-to-use course of action in certain cases (proceedings) 3) a list of popular trainers specialising in cyberbullying prevention who can be invited to a school for a general education class or parents meeting, 4) presentation of the psychological grounds in recognising the victims of cyberbullying among the children (how to recognise a child has been bullied, how to talk to such child, how to convince them to see a psychologist), 5) avoid the academic language which may not be understandable for the audience. Due to the specifics of the teaching profession, save for the regular, traditional lectures, e-learning is the best form of training. Finally, the respondents suggested this type of activities should be supported financially by the local governments.

4. DISCUSSIONS

Graph 1 presents synthetically all categorized analyzes regarding challenges in the field of cyberbullying prevention.



Graph 1. Solutions conducive to cyberbullying prevention

The respondents were familiar with the selected elements of cyberbullying. This results from the fact of the growing scale of the school incidents related to digital safety and the relatively big number of training projects addressed to teachers (Tomczyk, Srokowski and Wąsiński, 2016). We can notice that during the recent years, the level of teachers' knowledge of cyberbullying has been changing (Tomczyk, 2017). This results from the fact that teachers are the first to provide this safety, both online and offline (Pyżalski, 2012). The respondents take part in the programmes to raise awareness about the risky behaviours in the cyberspace. These initiatives are financed, for example, by the Ministry of National Education. At present, the issue of the prevention of cyberbullying and electronic aggression is one of the priorities in media pedagogy. This is confirmed , for example, by the number of educational events, conferences or publications focusing on the phenomenon. Despite these initiatives, teachers still have insufficient knowledge and digital literacy – this is due to the rapid pace of transformations taking place in the information society (Ziemba, 2013). New digital services and technologies force teachers to update their knowledge about the information and communication technologies (Kędzierska and Potyrała, 2015; Potyrała, 2017; Veličković and Stošić, 2016). Modern school needs competent, prepare educators who are able to face the challenges mediated by digital media (Stošić and Stošić, 2015).

Regarding the qualitative results presented herein, there are several recurring and new dilemmas related to the effectiveness of media prevention in the area of cyberbullying. First, the already mentioned changes in the cyberspace force teachers not only to constantly update their knowledge about the e-threats but also include the third parties into media prevention. This is an interesting issue because the respondents emphasised many times the effectiveness of the police and other intervention units. Often, the teachers feel helpless in solving complicated problems related to cyberbullying and prevention that they involve police officers in it. By the way, we need to emphasise that in the Polish system of prevention, the police willingly and frequently joins the prevention activities implemented in schools. This type of support is provided by qualified officers (Beale and Hall, 2007; Feinberg and Robey, 2009). According to the teachers, the level of digital literacy in their professional group is still insufficient to allow them to solve the problems of the digital world effectively (Tomczyk, 2019). It is a paradox, but despite low self-evaluation, it is teachers who are first to solve the issues

related with cyberbullying, as they work not only with the victims but also the witnesses, offenders and parents (Compton, Campbell and Mergler, 2014). However, the teachers believe their knowledge is insufficient and requires improvement with the support of other professionals, including police officers, researchers or NGO representatives (Zych et al., 2017; Giménez-Gualdo et al., 2018).

The respondents think the present media prevention methods are still ineffective (Zych et al., 2015). This opinion results from the fact of the generational differences, low awareness of students regarding the e-threats and, at the same time, highly developed functional components of digital literacy. The respondents also think that effective prevention must engage the parents. Unfortunately, when it comes to media education, parents also lack sufficient knowledge, time and interest in the problems of safety in the cyberspace. Of course, this is a selected group of parents (Wąsiński, Tomczyk, 2015; Mesch, 2009). The teachers emphasise that more and more often parents throw the responsibility for media education on the schools and neglect intentional educational, role modelling and prevention activities at home.

According to the teachers, modern media prevention does not fulfil its role. Teachers lack adequate knowledge not only due to their age or the level of digital literacy, but mainly because they do not receive support in updating their expertise and skills. Trainings they take part in, have many methodical flaws: they do not focus on practical application and are not regular. Teachers often respond intuitively as they have no knowledge about the mechanisms related to cyberbullying. Media prevention issues introduced during the general education classes are presented using instruction methods or other methods, forms and means which do not seem to be effective enough. The teachers notice there are different types of cyberbullying among the young people, which lead to isolation, damage to the reputation, vulgarisation of the online space, law infringement and publications of images (memes, manipulated graphics) which are hard to remove (Dooley, Pyżalski, Cross, 2009; Popović-Ćitić, Djurić, and Cvetković, 2011; Ševčíková, Šmahel and Otavová, 2012). Therefore, to eliminate and anticipate the above mentioned situations, teachers try to focus on the universal competencies and skills protecting from the e-threats, for example: developing personal culture, empathy, raising legal awareness, improving technical knowledge regarding, for example the lack of anonymity in the Internet (Pérez-Rodríguez et al., 2019). They see the potential hidden in the non-standard media prevention which would engage celebrities in the process of media education, leverage the phenomenon of youtubers or use materials prepared by specialist NGOs (Tomczyk, Kopecký, 2016; Kopecký, 2016). New times require constant searching for the new solutions and improvement of the methods used at present.

Cyberbullying prevention becomes particularly important in extreme cases, when there is an infringement of the law. These incidents are the most difficult for the teachers and they usually involve: sharing intimate photographs of the young people (Tomczyk, Szotkowski and Kopecký, 2017), home runaways, creating fake accounts – identity theft, racial-based hate and suicidal attempts as the result of a long-term cyberbullying (Pyżalski et al., 2019). The above mentioned consequences of cyberbullying happen in the Polish schools and require joint interventions of teachers and law enforcement authorities. When facing the most difficult cases, the respondents feel helpless in the area of psychological support needed. This is the specialist knowledge which combines the theory and practice of: psychological crisis intervention, law, mediation and IT (Plichta, 2017; Stauffer, et all., 2012; Tangen and Campbell, 2010). In addition, the teachers feel helpless when they are the victims of cyberbullying. They say that they too need support in dealing with the situations when someone attacks their reputation online and in removing or tracking the perpetrators. They also want to collaborate with the school management to develop and implement procedures to protect teachers in the cyberspace (Kopecký and Szotkowski, 2017; Kopecký and Szotkowski, 2017b).

Based in the focus group session, we can carefully conclude that teachers have the basic knowledge of the prevention related to digital safety in schools but they still feel uncertain as the key persons in formal media education. Throwing the responsibility on the school, lack of support from the parents and often also school directors, rapid development of the information society, quickly outdating digital literacy are the factors which force teachers to redefine their own prevention methods many times. Given the teachers postulates, it seems right to develop courses focusing on the practical application, which would enable quick access to proven preventive

solutions. Such possibility is provided in the form of synergic activities led by the academic circles of media educators and the interested beneficiaries (Eger, 2015; Eger and Egerová, 2013).

5. CONCLUSIONS

The issues presented herein are rooted in the risk paradigm of media pedagogy (Pyżalski et al., 2019; Tomczyk, Potyrała, 2019) thus they present the style of use of the digital media by the young people in the perspective of threats. The effective elimination of the e-threats, that is, increasing the level of digital safety, requires the development of digital literacy in the school environment. This, however, requires proven, effective and innovative elements of media prevention to be introduced into the education system. Successful minimising the digital threats has become one of the key priorities in the modern school where teachers, together with other beneficiaries mentioned herein, should act intentionally and with confidence. Such model approach raises many challenges listed by the teachers. The effective prevention also brings new challenges related to designing and experimenting with the solutions which have not been use before to prevent such e-threats as: cyberbullying, electronic aggression, problematic Internet use, identity theft, sexting, patostreaming. The wide range of e-threats must be further investigated to reveal the wider contexts, that is, conditions present in all education and socialisation environments.

ACKNOWLEDGEMENTS

The text was written as part of the project Smart Ecosystem for Learning and Inclusion - ERANet17/ICT-0076 SELI (co-financed by the National Centre for Research and Development). As part of the project activi-ties, dr Anna Włoch conducted the focus group session and transcribed the text. Dr Łukasz Tomczyk is responsible for the research methodology, discussion over the results and theoretical introduction. The authors also want to thank the members of the project, dr Joanna Wnęk-Gozdek and dr Anna Mróz for their support.

Conflict of interests

The authors declare no conflict of interest.

REFERENCES

Athanasiou, K., Melegkovits, E., Andrie, E. K., Magoulas, C., Tzavara, C. K., Richardson, C., ... & Tsitsika, A. K. (2018). Cross-national aspects of cyberbullying victimization among 14–17-year-old adolescents across seven European countries. *BMC public health, 18(1)*, 800. https://doi.org/10.1186/s12889-018-5682-4

Baldry, A. C., Farrington, D. P., & Sorrentino, A. (2015). "Am I at risk of cyberbullying"? A narrative review and conceptual framework for research on risk of cyberbullying and cybervictimization: The risk and needs assessment approach. *Aggression and Violent Behavior, 23*, 36–51. https://doi.org/10.1016/j.avb.2015.05.014

Barlett, C. P., Gentile, D. A., Anderson, C. A., Suzuki, K., Sakamoto, A., Yamaoka, A., & Katsura, R. (2013). Cross-Cultural Differences in Cyberbullying Behavior. *Journal of Cross-Cultural Psychology, 45(2),* 300–313. https://doi.org/10.1177/0022022113504622

Barlińska, J., Plichta, P., Pyżalski, J., & Szuster, A. (2018). Ich słowami–obraz pomocy w sytuacjach cyberprzemocy rówieśniczej z perspektywy uczniów (In their words – a picture of support in cyberbullying situations from the student's perspective). *Dziecko Krzywdzone. Teoria, badania, praktyka, 17(4)*, 82-115. https://dzieckokrzywdzone.fdds.pl/index.php/DK/article/view/693

Barlińska, J., Szuster, A., & Winiewski, M. (2013). Cyberbullying among adoles-cent bystanders: Role of the communi-cation medium, form of violence, and empathy. *Journal of Community & Ap-plied Social Psychology, 23(1)*, 37-51. https://doi.org/10.1002/casp.2137

Beale, A. V., & Hall, K. R. (2007). Cyberbullying: What School Administrators (and Parents) Can Do. The Clearing House: A Journal of Educational Strategies, *Issues and Ideas, 81(1),* 8–12. https://doi.org/10.3200/tchs.81.1.8-12

Blaya, C., Kaur, K., Sandhu, D., & Sundaram, S. (2018). Cyberbullying in Higher Education in India and France. In P. Smith, S. Sundaram, B. Spears, C. Blaya, M. Schäfer, & D. Sandhu (Eds.), *Bullying, Cyberbullying and Student Well-Being in Schools: Comparing European, Australian and Indian Perspectives* (pp. 107-129). Cambridge: Cambridge University Press. https://doi.org/10.1017/9781316987384.007

Bolton, N. (1979). Phenomenology and education. *British Journal of Educational Studies, 27(3),* 245-258. https://doi.org/10.2307/3120716

Casas, J. A., Del Rey, R., & Ortega-Ruiz, R. (2013). Bullying and cyberbullying: Convergent and divergent predictor variables. *Computers in Human Behavior, 29(3),* 580-587. https://doi.org/10.1016/j.chb.2012.11.015

Compton, L., Campbell, M. A., & Mergler, A. (2014). Teacher, parent and student perceptions of the motives of cyberbullies. *Social Psychology of Education, 17(3),* 383–400. https://doi.org/10.1007/s11218-014-9254-x

Czerwiński, K. (2011). Między pedagogiką ogólną a metodologią badań (Betwen general pedagogy and methodology of research). *Przegląd Badań Edukacyjnych, 2011, nr 1 (12)*, s. 85-105.

Del Rey, R., Casas, J. A., Ortega-Ruiz, R., Schultze-

Krumbholz, A., Scheithauer, H., Smith, P., … Plichta, P. (2015). Structural validation and cross-cultural robustness of the European Cyberbullying Intervention Project Questionnaire. *Computers in Human Behavior, 50*, 141–147. https://doi.org/10.1016/j.chb.2015.03.065

Dooley, J. J., Pyżalski, J., & Cross, D. (2009). Cyberbullying versus face-to-face bul-lying: A theoretical and conceptual review. *Zeitschrift für Psychologie/Journal of Psychology, 217(4),* 182-188. https://doi.org/10.1027/0044-3409.217.4.182

Eden, S., Heiman, T., & Olenik-Shemesh, D. (2013). Teachers' perceptions, beliefs and concerns about cyberbullying. *British Journal of Educational Technology, 44(6)*, 1036-1052. https://doi.org/10.1111/j.1467-8535.2012.01363.x

Eger, L. (2015). Is Facebook a similar learning tool for university students as LMS?. P*rocedia-Social and Behavioral Sciences, 203*, 233-238. https://doi.org/10.1016/j.sbspro.2015.08.287

Eger, L., & Egerová, D. (2013). e-Learning trends in Central Europe: The case of the Czech Republic. K*nowledge Management & E-Learning: An International Journal, 5(3)*, 375-387. https://doi.org/10.34105/j.kmel.2013.05.027

Fedorov, A. (2008). On media education. Moscow: ICOS UNESCO IFAP. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2625076

Feinberg, T., & Robey, N. (2009). Cyberbullying: Intervention and prevention strategies. *National Association of School Psychologists, 38(4)*, 22-24.

Fischer, S. M., & Bilz, L. (2019). Teachers' self-efficacy in bullying interventions and their probability of intervention. *Psychology in the Schools, 56(5),* 751-764. https://doi.org/10.1002/pits.22229

Frankowiak, K. (2018). Cyberagresja wśród adolescentów. – skala, charakter, uwarunkowania (cyberagression among adolescents – scale, character, conditions). *STUDIA Z TEORII WYCHOWANIA. TOM IX: 2018 NR 4(25),* 237-257.

Gilbert, L. C., & Fedorov, A. (2004). A model for media education research in Russia and the US. *Educational Media International, 41(2),* 157-162. https://doi.org/10.1080/09523980410001678610

Giménez-Gualdo, A.-M., Arnaiz-Sánchez, P., Cerezo-Ramírez, F., & Prodócimo, E. (2018). Teachers' and students' perception about cyberbullying. Intervention and coping strategies in primary and secondary education. *Comunicar, 26(56)*, 29–38. https://doi.org/10.3916/c56-2018-03

Hollá, K. (2016). Cyberbullying as a negative result of cyber-culture of Slovak children and adolescents: selected research findings. *Journal of Language and Cultural Education, 4(2)*, 40-55. https://doi.org/10.1515/jolace-2016-0015

Jäger, T., Amado, J., Matos, A., & Pessoa, T. (2010). Analysis of Experts' and Trainers' Views on Cyberbullying. *Australian Journal of Guidance and Counselling, 20(2)*, 169-181. https://doi.org/10.1375/ajgc.20.2.169

Kaimara, P., Poulimenou, S. M., Oikonomou, A., Deliyannis, I., & Plerou, A. (2019). Smartphones at Schools? Yes, Why not? *European Journal of Engineering Research and Science, 1–6*. https://doi.org/10.24018/ejers.2019.0.cie.1288

Kędzierska, B., & Potyrała, K. (2015). Kształcenie i doskonalenie nauczycieli w globalizującym się społeczeństwie (Vocational education and development in a globalizing society). *Rocznik Lubuski, 41(2),* 117-130.

Kopecký, K. (2016). Cyberbullying in a population of Slovak teenagers (quantitative research). *Human Affairs, 26(2).* https://doi.org/10.1515/humaff-2016-0013

Kopecký, K., & Szotkowski, R. (2013). Cyberbullying, sexting and establishment of risky contacts by Szech children within the Internet environment–research and prevention. *International Journal of Science and Research (IJSR), (4)5.*

Kopecký, K., & Szotkowski, R. (2017). Cyberbullying, cyber aggression and their impact on the victim – The teacher. *Telematics and Informatics, 34(2)*, 506–517. https://doi.org/10.1016/j.tele.2016.08.014

Kopecký, K., & Szotkowski, R. (2017b). Cyberbullying, cyber aggression and their impact on the victim – The teacher. *Telematics and Informatics, 34(2),* 506–517. https://doi.org/10.1016/j.tele.2016.08.014

Kvale, S. (2010). *Prowadzenie wywiadów (Conducting research)*. Warszawa: Wydawnictwo Naukowe PWN.

Kvale, S., & Brinkmann, S. (2009). *Interviews: Learning the craft of qualitative research interviewing.* Thousand Oaks, CA: Sage.

Lokmić, M., Opić, S., & Bilić, V. (2013). Violence against teachers - rule or exception?. *International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE), 1(2)*, 6-15. https://doi.org/10.5937/ijcrsee1602009o

Łuszczuk, W. (2008). Normatywny i interpretacyjny paradygmat w badaniach pedagogicznych (Normative and interpretative paradigm in pedagogical research). *Pedagogika, 3*, 13-26. http://www.sbc.org.pl/Content/22112/luszczuk.pdf

Marzano, G. (2019). *Educational Approaches for Tackling Cyberbullying*. In G. Marzano, & J. Lizut (Eds.), Cyberbullying and the Critical Importance of Educational Resources for Prevention and Intervention (pp. 173-210). Hershey, PA: IGI Global.

Mesch, G. S. (2009). Parental Mediation, Online Activities, and Cyberbullying. *CyberPsychology & Behavior, 12(4),* 387–393. https://doi.org/10.1089/cpb.2009.0068

Morbitzer, J. (2007). *Edukacja wspierana komputerowo a humanistyczne wartości pedagogiki* (Computer-supported education and humanistic values of pedagogy). Kraków: Wydaw. Naukowe Akademii Pedagogicznej.

Oliveira, P. M., Cunha, J. B., & Soares, F. (2019). Innovating in Control Engineering Teaching/Learning with Smartphones. *2019 6th International Conference on Control, Decision and Information Technologies (CoDIT)*. https://doi.org/10.1109/codit.2019.8820429

Panckhurst, R., & Cougnon, L.-A. (2019). Youth Digital Practices: Results from Belgian and French Projects. *TechTrends.* https://doi.org/10.1007/s11528-019-00417-y

Pérez-Rodríguez, A., Delgado-Ponce, A., Marín-Mateos, P., & Romero-Rodríguez, L. M. (2019). Media Competence in Spanish Secondary School Students. Assessing Instrumental and Critical Thinking Skills in Digital Contexts. *Educational*

Sciences: Theory & Practice, 19(3). https://doi.org/10.12738/estp.2019.3.003

Peters, M. A. (2009). Heidegger, phenomenology, education. *Educational Philosophy and Theory, 41(1)*, 1-6. https://doi.org/10.1111/j.1469-5812.2008.00516.x

Plichta, P. (2017). *Socjalizacja i wychowanie dzieci i młodzieży z niepełnosprawnością intelektualną w erze cyfrowej* (Socialization and education of children and adolescents with intellectual disabilities in the digital age). Toruń: Wydawnictwo Adam Marszałek.

Plichta, P., Barlińska, J., & Pyżalski, J. (2018). Cyberprzemoc a kreowanie własnego wizerunku w internecie-co w ich mechanizmach zmienia niepełnosprawność młodych dorosłych osób?. *Interdyscyplinarne Konteksty Pedagogiki Specjalnej, (20),* 101-122. https://doi.org/10.14746/ikps.2017.17.09

Popović-Citić, B., Djurić, S., & Cvetković, V. (2011). The prevalence of cyberbullying among adolescents: A case study of middle schools in Serbia. *School Psychology International, 32(4),* 412–424. https://doi.org/10.1177/0143034311401700

Potyrała, K. (2017). *iEdukacja. Synergia nowych mediów i dydaktyki. Ewolucja - antynomie - konteksty.* Kraków: Uniwersytet Pedagogiczny. https://doi.org/10.24917/9788380840522

Pyżalski, J. (2012). From cyberbullying to electronic aggression: typology of the phenomenon. *Emotional and Behavioural Difficulties, 17(3-4)*, 305–317. https://doi.org/10.1080/13632752.2012.704319

Pyżalski, J. (2012b). *Agresja elektroniczna i cyberbullying jako nowe ryzykowne zachowania młodzieży* (Electronic aggression and cyberbullying as new risky behaviors of young people). Kraków: Oficyna Wydawnicza Impuls.

Pyżalski, J., Zdrodowska, A., Tomczyk, Ł., Abramczuk, K. (2019). Polskie badanie EU Kids Online 2018. Najważniejsze wyniki i wnioski (Polish EU Kids Online 2018 survey. The most important results and conclusions). Poznań: Wydawnictwo Naukowe UAM.

Rębisz, S., Sikora, I., & Smoleń-Rębisz, K. (2017). Świadomość i skala zjawiska cyberprzemocy wśród młodzieży gimnazjalnej województwa podkarpackiego. *Edukacja – Technika – Informatyka, 21(3)*, 231–238. https://doi.org/10.15584/eti.2017.3.32

Ryk, A. (2011). *W poszukiwaniu podstaw pedagogiki humanistycznej.* Kraków: Oficyna Wydawnicza Impuls. https://doi.org/10.16926/p.2014.23.50

Schultze-Krumbholz, A., Göbel, K., Scheithauer, H., Brighi, A., Guarini, A., Tsorbatzoudis, H., … Smith, P. K. (2014). A Comparison of Classification Approaches for Cyberbullying and Traditional Bullying Using Data From Six European Countries. *Journal of School Violence, 14(1)*, 47–65. https://doi.org/10.1080/15388220.2014.961067

Ševčíková, A., & Šmahel, D. (2009). Online Harassment and Cyberbullying in the Czech Republic. *Zeitschrift Für Psychologie / Journal of Psychology, 217(4)*, 227–229. https://doi.org/10.1027/0044-3409.217.4.227

Ševčíková, A., Šmahel, D., & Otavová, M. (2012). The perception of cyberbullying in adolescent victims. *Emotional and Behavioural Difficulties, 17(3-4)*, 319–328. https://doi.org/10.1080/13632752.2012.704309

Soldatova, G., Rasskazova, E., Zotova, E., Lebesheva, M., Geer, M., & Roggendorf, P. (2014). *Russian Kids Online: key findings of the EU Kids Online II survey in Russia.* Moscow: Foundation for Internet Development. http://eprints.lse.ac.uk/60575/

Sorrentino, A., Baldry, A. C., Farrington, D. P., & Blaya, C. (2019). Epidemiology of Cyberbullying across Europe: Differences between Countries and Genders. *Educational Sciences: Theory & Practice, 19(2)*. https://doi.org/10.12738/estp.2019.2.005

Stauffer, S., Heath, M. A., Coyne, S. M., & Ferrin, S. (2012). High school teachers' perceptions of cyberbullying prevention and intervention strategies. *Psychology in the Schools, 49(4),* 352-367. https://doi.org/10.1002/pits.21603

Stošić, L., & Stošić, I. (2015). Perceptions of teachers regarding the implementation of the internet in education. *Computers in Human Behavior, 53*, 462-468. https://doi.org/10.1016/j.chb.2015.07.027

Tangen, D., & Campbell, M. (2010). Cyberbullying prevention: One primary school's approach. *Journal of Psychologists and Counsellors in Schools, 20(2)*, 225-234. https://doi.org/10.1375/ajgc.20.2.225

Tomczyk, Ł. (2017). Cyberbullying in 2010 and 2015 — A perspective on the changes in the phenomenon among ad-olescents in Poland in the context of preventive action. *Children and Youth Services Review, 75,* 50–60. https://doi.org/10.1016/j.childyouth.2017.02.017

Tomczyk, Ł. (2018). Digital competences of parents in the matter of electronic threats. In *SHS Web of Conferences (Vol. 48, p. 01004)*. EDP Sciences. https://doi.org/10.1051/shsconf/20184801004

Tomczyk, Ł. (2019). What Do Teachers Know About Digital Safety? *Computers in the Schools, 1–21.* https://doi.org/10.1080/07380569.2019.1642728

Tomczyk, Ł., & Kopecký, K. (2016). Children and youth safety on the Internet: Experiences from Czech Republic and Poland. *Telematics and Informatics, 33(3)*, 822–833. https://doi.org/10.1016/j.tele.2015.12.003

Tomczyk, Ł., & Solecki, R. (2019). Problematic internet use and protective factors related to family and free time activities among young people. *Kuram ve Uygulamada Egitim Bilimleri, 19(3),* 1-13. https://doi.org/10.12738/estp.2019.3.001

Tomczyk, Ł., & Wąsiński, A. (2017). Parents in the Process of Educational Impact in the Area of the Use of New Media by Children and Teenagers in the Family Environment. *Egitim ve Bilim, 42(190)*. https://doi.org/10.15390/eb.2017.4674

Tomczyk, Ł., Potyrała, K. (2019). *Wybrane zagrożenia bezpieczeństwa cyfrowego dzieci i młodzieży w perspektywie pedagogiki mediów* (Selected threats to the digital security of children and young people in the perspective of media pedagogy). Kraków: Wydaw. Uniwersytetu Pedagogicznego.

Tomczyk, Ł., Srokowski, Ł. & Wąsiński, A. (2016). *Kompetencje w zakresie bezpieczeństwa cyfrowego w polskiej szkole (Competence in are of Digital safety in polish school).* Tarnów: Stowarzyszenie Miasta w Internecie.

Tomczyk, Ł., Szotkowski, R., & Kopecký, K. (2017).

Zachowania ryzykowne dzieci i młodzieży związane z udostępnianiem i odbiorem materiałów o charakterze seksualnym–wybrane wyniki badań czeskiego Centrum Prewencji Ryzyka Wirtualnej Komunikacji z lat 2010–2017 (Risky behavior of children and adolescents related to the sharing and reception of sexual material - selected research results of the Czech Center for Virtual Risk Prevention from 2010-2017). *Dziecko krzywdzone. Teoria, badania, praktyka, 16(3)*, 103-118.

Tsitsika, A., Janikian, M., Wójcik, S., Makaruk, K., Tzavela, E., Tzavara, C., ... & Richardson, C. (2015). Cyberbullying victimization prevalence and associations with internalizing and externalizing problems among adolescents in six European countries. *Computers in Human Behavior, 51*, 1-7. https://doi.org/10.1016/j.chb.2015.04.048

Vandebosch, H., & Van Cleemput, K. (2008). Defining cyberbullying: A qualitative research into the perceptions of youngsters. *CyberPsychology & Behavior, 11(4)*, 499-503. https://doi.org/10.1089/cpb.2007.0042

Vandebosch, H., Beirens, L., D'Haese, W., Wegge, D., & Pabian, S. (2012). Police actions with regard to cyberbullying: The Belgian case. *Psicothema, 24(4)*, 646-652. http://www.psicothema.com/PDF/4067.pdf

Vaughn, S., Schumm, J. S., & Sinagub, J. M. (1996). *Focus group interviews in education and psychology.* Thousand Oaks, CA: Sage.

Vazsonyi, A. T., Machackova, H., Sevcikova, A., Smahel, D., & Cerna, A. (2012). Cyberbullying in context: Direct and indirect effects by low self-control across 25 European countries. *European Journal of Developmental Psychology, 9(2)*, 210–227. https://doi.org/10.1080/17405629.2011.644919

Veličković, S., & Stošić, L. (2016). Preparedness of educators to implement modern information technologies in their work with preschool children. *International Journal of Cognitive Research in Science, Engineering and Education, 4(1).* https://doi.org/10.5937/IJCRSEE1601023V

Wąsiński, A., & Tomczyk, Ł. (2015). Factors reducing the risk of internet addiction in young people in their home environment. *Children and Youth Services Review, 57,* 68-74. https://doi.org/10.1016/j.childyouth.2015.07.022

Ziemba, E. (2013). The holistic and systems approach to the sustainable information society. *Journal of Computer Information Systems, 54(1)*, 106-116. https://doi.org/10.1080/08874417.2013.11645676

Zych, I., Baldry, A. C., & Farrington, D. P. (2017). *School Bullying and Cyberbul-lying: Prevalence, Characteristics, Outcomes, and Prevention.* Handbook of Behavioral Criminology, 113–138. https://doi.org/10.1007/978-3-319-61625-4_8

Zych, I., Farrington, D. P., & Ttofi, M. M. (2019). Protective factors against bullying and cyberbullying: A systematic review of meta-analyses. *Aggression and Violent Behavior, 45,* 4–19. https://doi.org/10.1016/j.avb.2018.06.008

Zych, I., Ortega-Ruiz, R., & Del Rey, R. (2015). Systematic review of theoretical studies on bullying and cyberbullying: Facts, knowledge, prevention, and intervention. *Aggression and Violent Behavior, 23,* 1–21. https://doi.org/10.1016/j.avb.2015.10.001

Zych, I., Ortega-Ruiz, R., & Marín-López, I. (2016). Cyberbullying: a systematic review of research, its prevalence and assessment issues in Spanish studies. *Psicología Educativa, 22(1)*, 5–18. https://doi.org/10.1016/j.pse.2016.03.002

EVALUATION OF ANXIETY CONTROL IN SCHOOL-AGE SPORTS

Dr. María Espada, Polytechnic University of Madrid, Spain
E-mail: maria.espada@upm.es
Dr. Enrique Fradejas, International University of La Rioja, Spain
E-mail: enriquefmp@yahoo.es

ARTICLE INFO

Original Research
Received: October, 22.2019.
Revised: November, 23.2019.
Accepted: November, 27.2019.
doi: 10.5937/IJCRSEE1903027E

UDK
159.944.4.072:796(460)
613.86(460)

Keywords:
control of anxiety,
type of sport,
school age,
physical education,
health practices,
behaviors.

ABSTRACT

Anxiety is the main manifestation of stress in competitive sport. This study evaluates anxiety control in school-age sport, according to gender, age, type of sport (individual / team) and sports modality. The research follows a descriptive quantitative methodology, using a survey. The sample was composed of 816 young athletes aged between 12 and 18 (411 men and 405 women), who practise different individual and team sports in Castilla-La Mancha (Spain). The sample size was calculated taking several aspects into consideration: the population is infinite; the population variance was calculated according to the worst-case scenario where "P" and "Q" are equal with 50% each; and the confidence interval was 95.5%, with a margin of error of ± 3.5%. The questionnaire used was Psychological Characteristics related to Sports Performance (CPRD). The results show statistically significant differences in relation to gender, since men have greater anxiety control. No statistically significant differences appear in relation to age, type of sport (individual / team) and sports modality. Likewise, correlations are evident with other relevant psychological dimensions such as motivation, influence of performance evaluation and mental ability, with the exception of team cohesion. Prevention measures should be implemented by coaches / educators, parents and young athletes, in order to strengthen their levels of self-confidence and simultaneously reduce the levels of anxiety generated in school-age sports.

1. INTRODUCTION

The psychological dimension of anxiety control offers a global idea about the anxiety response that can result from participation in a competition, the resources of the young athletes to manage this anxiety (self-confidence and control of anxiety) and their ability to be properly concentrated in the stressful situation of the competition (attention) (Gimeno, Buceta, and Pérez-Llantada, 2007). Anxiety can be considered one of the main psychological variables related to sports performance (Bohórquez, Delgado, and Fernández, 2017). Numerous works describe how anxiety affects the performance of young athletes, the source that provokes it, as well as the techniques used to control it (García-Mas et al., 2015; Ruiz-Juan, Zarauz, and Flores-Allende, 2016).

Anxiety is a process that entails a substantial imbalance between the capacity of demand (physical and / or psychological) and the ability to respond, in conditions in which the failure to satisfy said demand has important consequences (Martínez-Monteagudo, English, and García-Fernández, 2013). The reactions to the stressful events as well as their consequences may vary depending on personal and environmental factors (Kevereski, Kotevska and Ristevski, 2016). Children and adolescents are exposed to numerous experiences that generate anxiety (Muniz and Fernandes, 2016). These experiences may be different depending on the characteristics of the sports activity, but basically, they have to do with the following aspects: athletes' lifestyles, training demands, demands of the competitions, injuries, illnesses and additional pressure (Gallegos, Linan, Stark, and Ruvalcaba, 2013).

In short, as can be seen, the anxiety of

Corresponding Author
Dr. María Espada, Polytechnic University of Madrid, Spain
E-mail: maria.espada@upm.es

athletes of school age may be due to a myriad of aspects. In any case, this anxiety may be caused by general triggers or some that are specific to the sporting activity and / or appear before, during and / or after the competition. The multidimensional theoretical approach to anxiety is based on the work of Martens, Vealey, and Burton (1990), who consider it as an individual reaction to a situation or stimulus of anxiety.

Regarding the control dimension of anxiety analysed in the present study, we distinguish between precompetitive anxiety and competitive anxiety. All athletes have an optimal level of precompetitive activation that allows them to attain their maximum performance by being sufficiently activated to compete, but if it reaches levels above the optimum threshold, this hyperactivation could become anxiety and could block the ideal functioning of the individual.

Similarly, the approach of Núñez and García-Mas (2017), indicates that precompetitive anxiety can be debilitating or facilitating depending on how the athletes interpret it. If they consider that anxiety limits the normal functioning of their organism, it will have a debilitating effect, but if they consider it as a sign of the importance of the task, which helps them to focus their physical and cognitive resources on performance in the competition, its effect will be facilitating. Competitive anxiety is one of the aspects of sport that most worries athletes, coaches and parents because of its impact on sports performance. Several studies support the existence of a negative relationship between a high level of competitive anxiety and sports performance (Ramis, Torregrosa, Viladrich, and Cruz, 2010).

Although it is true that anxiety affects performance, the relationships between both variables are not entirely clear, starting with the possibility that anxiety influences differently depending on the individual and his / her perception of it as a facilitator or inhibitor of performance, and also according to the type of sport and its intrinsic characteristics, if it is an individual or team sport, its physical requirements, etc. (García-Mas et al., 2011).

One of the main interests of this study is that it includes another alternative instrument to evaluate the control of anxiety in school-age sport (pre-competitive anxiety and competitive anxiety) different, as can be seen, from most previous studies (focussed on anxiety traitanxiety state, cognitive anxiety-somatic anxiety and self-confidence, concentration disruption and worry).

Therefore, it contributes to the results of other studies, and offers other possibilities for the analysis of anxiety, thus complementing other previous studies. In addition, it determines possible correlations between the control dimension of anxiety and the rest of the psychological dimensions that influence the performance of an athlete (motivation, influence of performance evaluation, mental ability and team cohesion).

The general objective of this study was to evaluate anxiety control in school-age sport carried out by students between 12 and 17 years old in the autonomous community of Castilla-La Mancha. The specific objectives of this study were as follows:

-To determine anxiety control in both genders.

-To investigate anxiety control based on age.

- To analyse anxiety control according to the type of sport (individual / team) and sports discipline practised.

- To establish the correlations that the control dimension of anxiety may have with other relevant dimensions in sport, such as motivation, influence of performance evaluation, mental ability and team cohesion.

The hypothesis of the present work was that there are statistically significant relationships between the control dimension of anxiety and gender, age, type of sport (individual / team) and the practised sports discipline. In addition, we hypothesised that there are correlations among the control of anxiety and motivation, the influence of performance evaluation, mental ability and team cohesion.

2. MATERIALS AND METHODS

2.1. Methods

The research followed a descriptive quantitative methodology, and the procedures used were those of the survey, since the application of a standardised procedure for collecting information was carried out through questions to the sample of the population studied (Lussier and Kimball, 2009).

2.2. Participants

To estimate the general universe of the study, indirect lists were used, making it possible to use sample units, due to the lack

of a specific census of people between 12 and 17 years old who practise sports in a club and / or sports school in Castilla-La Mancha. It was necessary to use indirect lists to establish the universe of work for this population of study, since the identification and location of the units from which the information was obtained is very complex. The lists used in this investigation were as follows:

List of inhabitants by age and gender in each of the five provinces of the Autonomous Community of Castilla-La Mancha (National Institute of Statistics, 1st July 2013).

List of municipalities and population of the Autonomous Community of Castilla-La Mancha (National Institute of Statistics, 1st January 2012).

From these lists and the values obtained, a total of approximately 147,166 people was calculated, constituting the total of the population under study. The sample presented the following characteristics: The questionnaire was administered to 816 athletes (411 men and 405 women) (50.4% males and 49.6% females) between 12 and 18 years old (272 athletes of 12 to 13 years old, 272 athletes of 14 to 15 years old, and 272 athletes of 16 to 17 years old) belonging to clubs and / or sports schools in Castilla-La Mancha. Several aspects were considered for the calculation of the sample size: the population was infinite, so the worst-case scenario was used for the population variance where "P" and "Q" were equal with 50% each; and the confidence interval was 95.5%, with a margin of error of ± 3.55%. The affixation of the sample was proportional to the distribution of people according to the demographic size of the municipalities and according to the geographical situation of the different provinces of Castilla-La Mancha.

In addition, several sub-samplings were carried out to disperse the sample and to have a positive influence on the accuracy of the estimates. Likewise, it was decided to interview a maximum of two teams under study in each club and / or sports school. Thus, decreasing the sampling error.

The type of sampling used was random sampling by conglomerates, using multistages, stratified in the first phase by conglomerates, since a sequence of stages was followed (applying random sampling in each of the stages) for selection of the sample units (conglomerates) from higher to lower rank, until the constituent individuals of the sample were reached (Cea D'Ancona, 1999).

2.3. Instruments

The instrument used in the study was the Psychological Characteristics related to Sports Performance (CPRD) questionnaire by Gimeno, Buceta, and Pérez-Llantada (2001). These authors created it in order to have a similar tool, in the context of Spanish athletes, to the Psychological Skills Inventory for Sports (PSIS) questionnaire by Mahoney, Gabriel, and Perkins (1987). This instrument is composed of 55 items grouped into 5 dimensions: control of anxiety; motivation; influence of performance evaluation; mental ability and team cohesion. It has a high internal consistency ($\alpha = .85$). In addition, this instrument has been, and continues to be, used in numerous investigations.

The CPRD questionnaire retains the five-point Likert-type response format of the PSIS questionnaire, but with the inclusion of an additional response option for those cases in which the athlete "does not understand the item", in order to avoid null responses or responses in the central position. It consists of closed categorised questions, where the order is inflexible. In addition, some of them are for control (to check the consistency and sincerity of the answers of the interviewee) and others part of a battery (set of questions on the same topic that complement each other).

For the present work, the control dimension of anxiety was selected ($\alpha = .88$), analysing the level of anxiety prior to and during the competition.

Anxiety is the main manifestation of stress in competitive sport. The CPRD includes eight items related to this response. Five are included in the control dimension of anxiety (6, 12, 20, 30 and 36) and three in the influence dimension of performance evaluation (16, 28 and 35). Three refer to precompetitive anxiety or that experienced prior to the competition (12, 20 and 36), and another three to competitive anxiety or that experienced during the competition (16, 28 and 35). Item 6 attempts to explore whether anxiety interferes negatively with performance and item 30 refers to the athletes' ability to control their tension.

2.4. Procedures

After obtaining the approval for collaboration on the part of the coaches, and / or presidents of the sports clubs and schools participating in the study, as well as

the written informed consent of the parents of the young athletes, the questionnaires were answered by the young athletes collectively and anonymously in the sports facility. The researchers were present during the administration of the tests to clarify possible doubts and verify independent completion by the participants.

2.5. Statistical analysis

The SPSS program v.20.0 (SPSS Inc., USA) was used to carry out the statistical analysis.

Descriptive and inferential statistical tests were used. In the descriptive statistics, a bivariate analysis was carried out using relative frequency tables (percentages). In addition, statistical frequency data were found such as: mean and standard deviations. In the inferential statistics, the Kolmogorov-Smirnov test was used to verify the normality of the distributions. For the variables that fulfilled a normal distribution, we used Student's t-test for independent samples and one-way ANOVA in order to analyse the relationship among the variables. Likewise, the Levene test was used to evaluate the homogeneity of the variances, using the statistical criterion of significance of $p < .05$. Finally, to determine possible correlations between the control of anxiety and other psychological dimensions of the questionnaire present in school-age sport, the Pearson correlation test was applied ($p < .01$).

3. RESULTS

Table 1 shows the control of anxiety in relation to gender. At first, differences in mean were found between both genders, with higher scores in men (Table 1). Once explored and assuming that the criterion of normality of Kolmogorov-Smirnov was met for large samples (> 100 individuals), we proceeded to perform the Levene test or homogeneity test of variances, in which no statistically significant differences were observed between variances. Finally, we performed the t test for independent samples, in which we found that there were statistically significant differences between both genders, $t (799.97) = 4.07$, $p < .001$. Therefore, it is the men who show greater control of anxiety, with the women showing the highest levels of anxiety in school-age sport.

Table 1. Control of anxiety in relation to gender

	Gender	n	M	Standard deviation	Standard error of the mean
Control of anxiety	Male	411	3.4733	.59744	.02972
	Female	405	3.3020	.59171	.02966

Regarding the control of anxiety as a function of age, Table 2 shows that there are differences in mean, with younger students (12-13 years old) having a higher mean in the control of anxiety. However, no statistically significant differences appeared, $F (58.743) = 1.33$, $p = .051$ (Table 3).

Table 2. Control of anxiety in relation to age

	n	Min	Max	M	Standard deviation
12-13 years	272	1.65	4.70	3.4496	.60222
14-15 years	272	1.80	4.70	3.3770	.59425
16-17 years	272	1.80	4.80	3.3388	.60169

Table 3. Control of anxiety in relation to age

	Sum of squares	gl	Half quadratic	F	Sig.
Inter-groups	50.337	58	.868	1.339	.051
Intra-groups	481.658	743	.648		
Total	531.995	801			

When analysing the control of anxiety according to the type of sport practised (individual / team), at first it was observed that there is a slight difference in the mean, with higher scores in sportsmen who practise team sports (Table 4).

Subsequently, we proceeded to perform the t-test for independent samples, which showed that there were no statistically significant differences, $t (800) = -.474$, $p = .63$.

Table 4. Control of anxiety in relation to the type of sport

	Type of sport	n	M	Standard deviation	Standard error of the mean
Anxiety control	Individual	407	3.3781	.59518	.02983
	Team	409	3.3983	.60603	.03015

If we analyse the control of anxiety in each of the sports disciplines, Table 5 shows that there are differences in the mean, with football and athletics being the sports in which there is greater control of anxiety, compared to futsal, tennis and rhythmic gymnastics, which are the sports that present lower

averages. However, no statistically significant differences appeared, F (58.743) = .972, p = .53.

Table 5. Control of anxiety in relation to sports discipline

	n	Min	Max	M	Standard deviation.
Basketball	82	2.10	4.50	3.4415	.53459
Handball	82	2.10	4.80	3.4045	.66010
Football	82	1.65	4.65	3.4772	.67073
Futsal	82	1.95	4.40	3.2799	.60435
Volleyball	81	1.80	4.45	3.3895	.54679
Athletics	81	1.80	4.70	3.4506	.59927
Rhythmic gymnastics	81	1.70	4.50	3.3272	.57086
Swimming	82	2.15	4.55	3.3604	.60237
Judo	81	1.95	4.70	3.44	.63324
Tennis	82	2.15	4.45	3.3130	.56947

To determine the possible correlations of the control dimension of anxiety with the other psychological dimensions analysed with the CPRD questionnaire, the Pearson correlation test was applied. The results showed that anxiety control is statistically related to all other dimensions (motivation, influence of performance evaluation, mental ability), except with team cohesion. The relationships that have been obtained have a positive direction, that is, at a higher level of anxiety control obtained by the athletes they tend to have higher levels of the other dimensions (Table 6).

Table 6. Table of Correlations of the psychological dimensions of the CPRD

		Motivation	Anxiety control	Influence of Performance Evaluation	Mental ability	Cohesion
Motivation	Pearson correlation	1	.412**	.239**	.337**	.284**
	Sig. (bilateral)		.000	.000	.000	.000
	n	813	801	805	802	813
Anxiety control	Pearson correlation	.412**	1	.684**	.219**	.004
	Sig. (bilateral)	.000		.000	.000	.901
	n	801	802	797	794	802
Influence of Performance Evaluation	Pearson correlation	.239**	.684**	1	.043	-.101**
	Sig. (bilateral)	.000	.000		.224	.004
	n	805	797	807	798	807
Mental ability	Pearson correlation	.337**	.219**	.043	1	.265**
	Sig. (bilateral)	.000	.000	.224		.000
	n	802	794	798	804	804
Cohesion	Pearson correlation	.284**	.004	-.101**	.265**	1
	Sig. (bilateral)	.000	.901	.004	.000	
	n	813	802	807	804	816

** The correlation is significant at level .01 (bilateral).

Correlations between psychological dimensions:

a) Control of anxiety and motivation: A statistically significant relationship between both variables is proposed, this is a moderate and positive relationship, where at higher levels of motivation, higher levels of control of anxiety are found among athletes (r =. 412; p < .001).

b) Control of anxiety and influence of performance evaluation: A statistically significant moderate and positive relationship between both variables is considered, where at higher levels of influence of the evaluation of performance, there are higher levels of control of anxiety among athletes (r = .684, p < .001).

c) Control of anxiety and mental ability: A statistically significant low and positive relationship between both variables is considered, where at higher levels of mental ability, there are higher levels of anxiety control among athletes (r = .219; p < .001).

d) Control of anxiety and team cohesion: There is no statistically significant relationship between both variables, so that team cohesion does not influence athletes' control of anxiety (r = .004, p = .901).

4. DISCUSSION

The results confirm, in relation to the control of anxiety and gender, that there are statistically significant differences, with men obtaining higher scores in anxiety control. The fact that women show higher levels of anxiety than their male peers in sports competition is a fact confirmed by the results obtained in most of the previous studies (Bulbule and Kannur, 2014; Ponseti, García-Mas, Cantallops, and Vidal, 2017; Pozos, Preciado, Acosta, Aguilera, and Delgado, 2014; Ujwala and Jigmat, 2011). Therefore, the vast majority of studies indicate the existence of gender differences in the evaluation of anxiety control, identifying biological factors and role differences, as being responsible for women manifesting higher levels of anxiety than men (Hanton, S., O´ Brien, M., and Mellalieu, S. D., 2003). In this regard, another possible reason may be that young women perceive that their bodies are watched, commented on and evaluated by others due to the physical pubertal changes they experience (Linder, Grabe, and Hyde, 2007; Peráčková, Chovancová, Kukurová, and Plevková, 2018). Besides, girls have a worse self-perception of motor competence and motivation to practise physical activity (Espada and Galán, 2017). It is also linked to negative experiences that can lead women to abandon physical activity at these ages (Stefani, Andrés, and Oanes, 2014). In addition, in sports low levels of self-confidence are related with high levels of competitive anxiety (Jaenes, Peñaloza, Navarrete and Bohórquez, 2012). Particularly in women high levels of competitive anxiety are related to women with a low level of selfconfidence (Navlet, 2012).

Likewise, other researchers in the field of sports, such as Cruz (2014) have contributed to these efforts to clarify the causes of these gender differences, arguing that sexual stereotypes of expressing anxiety may be better tolerated by women, therefore they manifest higher values than men. Thus, most of the researchers refer to the difference of roles and the greater tolerance and tendency to emotional expression by women, as responsible for these results. However, in other studies no statistically significant differences were found according to gender (Singh, Rahaman, and Singh, 2013).

The results confirm, in relation to the control of anxiety and age, that the younger athletes (12-13 years) reported having greater control of anxiety in competitive sport, than the older athletes (16-17 years). Although, coinciding with the results of other previous studies there are no statistically significant differences (Singh, Rahaman, and Singh, 2013; Kirubalan and Gopinathan, 2013; Olmedilla et al., 2019).

This tendency could be due to younger athletes showing some overestimation of their skills, perhaps because of lesser competitive experience, a lower self-awareness of psychological limitations, and less exposure to experiences related to the performance in competition demands (Olmedilla et al., 2019).

As pointed out by Buceta (2004), for the older athletes who are in the youth category (16-17 years old), the levels of tactical demand are higher, and they must perform in the competitions in more adverse conditions, having now to consider circumstances that were not important in the formative process of the previous years (the opposing team, the situation on the score-board, the time remaining). Likewise, part of the competitions on the calendar are proposed with the exclusive objective of winning, so that the athletes learn to compete under the pressure of "having to win". In addition, in other studies, professional athletes, compared to amateurs, showed higher scores in anxiety control (Olmedilla et al., 2018).

The results confirm, in relation to the control of anxiety and the type of sport (individual / team), that there are no statistically significant differences, coinciding with the results of other previous studies (Navlet, 2012). However, in individual sports there appear to be greater difficulties in controlling anxiety, coinciding in this regard, with many of the previous studies (Dias, Cruz, and Fonseca, 2010, Dale, 2000). Possible causes of the results of these studies may be: the situations and competitions are very different (Olmedilla et al., 2018), the sharing of responsibilities for errors in performance decreases the levels of anxiety, hence individual sports increase the value of the threat of a possible evaluation of performance or, individual sports focus more intensely on individual performance, which implies greater social assessment, and, therefore, more perceived anxiety (Dias, Cruz, and Fonseca, 2010). Similarly, Dale (2000) found that the team can be a refuge and support, arguing that this could be an explanation of why individual sports practitioners found it more difficult to regulate their own emotions during the competition. On the contrary, Singh's et all., study (2013) in which the state of competitive anxiety was compared between

an individual sport (chess) and a team sport (cricket), showed higher levels of competitive anxiety in athletes who practised cricket (team sport), noting among the possible reasons, the media and audience repercussion of cricket with respect to chess.

Finally, the results confirm, in relation to the control of anxiety and the sports discipline, that, although there are no statistically significant differences, in disciplines such as football and athletics, higher scores in anxiety control are obtained, in comparison to athletes who practice futsal, tennis and rhythmic gymnastics, who obtain lower scores in anxiety control. In rhythmic gymnastics, the frequency of competitions is very low, which makes the competition a potentially high-stress situation. Other possible conditions in this regard in the competition may be: the initiation to competitions occurs at very young ages (between 9 and 11 years), there is no recreational approach, the aesthetic objective that characterises this sport, the public exposure of the body during competition and the instrumental value that some women trainers give to weight loss (Fournier, Calmels, Durand-Bush, and Salmela, 2005).

5. CONCLUSIONS

These results can have a practical sense, both for training and competition, as they provide more and better information to the coaches / educators of young athletes about emotions that are frequently related to competitive challenges and thus help them to work on skills and coping strategies so that the athletes achieve a better predisposition when facing the competition, improving their selfconfidence, which will probably lead to a better performance (Jaenes et al., 2012). However, an essential measure is the adoption by coaches / educators, parents and young athletes, of preventive measures and, where appropriate, coping strategies (Kaplánová, 2019; Silveira, Fiorim, and Pozzatto, 2014; Stefani, Andrés, and Oanes, 2014), in order to strengthen their levels of self-confidence and simultaneously reduce anxiety levels generated in school-age sport.

ACKNOWLEDGEMENTS

The paper is the part of the doctoral thesis "Influence of the psychological characteristics in sports at school in Castilla-La Mancha", Spain.

Conflict of interests

The authors declare no conflict of interest.

REFERENCES

Bohórquez, M., Delgado, P., & Fernández, J. (2017). Rendimientos deportivos auto y hetero percibidos y cohesión grupal: un estudio exploratorio [Self and hetero perceived sports performance and group cohesion: an exploratory study]. *Retos, 31*, 103-106. Retrieved from https://www.redalyc.org/pdf/3457/345750049019.pdf

Buceta, J. M. (2004). *Estrategias psicológicas para entrenadores de deportistas jóvenes.* [Psychological strategies for coaches of young athletes]. Librería-Editorial Dykinson. Retrieved from https://books.google.rs/books?hl=en&lr=&id=mgoziiuXWi4C&oi=fnd&pg=PA9&dq=Buceta,+J.+M.+(2004).+Estrategias+Psicol%C3%B3gicas+para+entrenadores+de+deportistas+j%C3%B3venes+%5BPsychological+strategies+for+coaches+of+young+athletes%5D.+Madrid,+Spain:+Dykinson.&ots=Al_pOqAkZK&sig=mYEwIrSohgrhPIt2u0KKti507U0&redir_esc=y#v=onepage&q&f=false

Bulbule, S. M., & Kannur, N. G. (2014). A comparative study of sports competitive anxiety among baseball players. *Golden Research Thoughts, 3(8).* Retrieved on 11th September 2016 from https://www.cabdirect.org/cabdirect/abstract/20143201131

Cea D'ancona, M. A . (1999). *Metodología cuantitativa: estrategias y técnicas de investigación social.* [Quantitative methodology. Strategies and techniques of social research]. Síntesis.

Cruz, J. (2014). El Deporte de iniciación [Sports initiation]. Comunicación presentada en la *Conferencia correspondiente a las XVII Jornadas de Actualización en Psicología del Deporte.* [Paper presented at the 17th Symposium on Up-dating Sports Psychology] Madrid, Spain: UNED.

Dale, G. A. (2000). Distractions and coping strategies of elite decathletes during their most memorable performances. *The sport psychologist, 14(1),* 17-41. https://doi.org/10.1123/tsp.14.1.17

Dias, C. S., Cruz, J. F. A., & Fonseca, A. M. (2010). Coping strategies, multidimensional competitive anxiety and cognitive threat appraisal: Differences across sex, age and type of sport. *Serbian Journal of Sport Sciences, 4(1)*, 23-31. Retrieved from http://hdl.handle.net/1822/16596

Espada-Mateos, M., & Galán, S. (2017). Evaluación de las barreras para la práctica de actividad física y deportiva en los adolescentes españoles. [Evaluation of the barriers to the practice of physical and sports activities in Spanish adolescents]. *Revista de Salud Pública, 19(6),* 739-743. https://doi.org/10.15446/rsap.V19n6.66078

Fournier, J. F., Calmels, C., Durand-Bush, N., & Salmela, J. H. (2005). Effects of a season-long PST program on gymnastic performance and on psychological skill development. *International journal of sport and exercise psychology,*

3(1), 59-78. https://doi.org/10.1080/1612197X.2005.9671758

Gallegos, J., Linan-Thompson, S., Stark, K., & Ruvalcaba, N. (2013). Preventing childhood anxiety and depression: Testing the effectiveness of a schoolbased program in Mexico. *Psicología Educativa, 19(1)*, 37-44. https://doi.org/10.5093/ed2013a6

García-Mas, A., Fuster-Parra, P., Ponseti, F. J., Palou, P., Olmedilla, A., & Cruz, J. (2015). Análisis de las relaciones entre la motivación, el clima motivacional y la ansiedad competitiva en jóvenes jugadores de equipo mediante una red Bayesiana. [A Bayesian network to study motivation, motivational climate and anxiety in young competitive team players]. *Anales de Psicología/Annals of Psychology, 31(1),* 355-366. https://doi.org/10.6018/analesps.31.1.167531

García-Mas, A., Palou, P., Smith, R. E., Ponseti, X., Almeida, P., Lameiras, J., ... & Leiva, A. (2011). Ansiedad competitiva y clima motivacional en jóvenes futbolistas de competición, en relación con las habilidades y el rendimiento percibido por sus entrenadores. [Competitive anxiety and motivational climate in young competitive players, in relation to the skills and performance perceived by their coaches]. *Revista de psicología del deporte, 20(1),* 197-207. Retrieved from https://www.redalyc.org/articulo.oa?id=235119302014

Gimeno, F., Buceta, J. M., & Pérez-Llanta, M. D. C. (2001). El cuestionario «características psicológicas relacionadas con el rendimiento deportivo» (CPRD): Características psicométricas. [The Psychological Characteristics Questionnaire related to sports performance (CPRD): Psychometric characteristics]. *Análise Psicológica, 19(1),* 93-113. Retrieved from http://www.scielo.mec.pt/scielo.php?pid=S0870-82312001000100009&script=sci_arttext&tlng=es

Gimeno, F., Buceta, J. M., & Pérez-Llantada, M. C. (2007). Influencia de las variables psicológicas en el deporte de competición: Evaluación mediante el cuestionario características psicológicas relacionadas con el rendimiento deportivo [Influence of psychological variables in competitive sport: Evaluation through the questionnaire psychological characteristics related to sports performance]. *Psicothema, 19,* 667-672. Retrieved from https://www.redalyc.org/articulo.oa?id=72719420

Guillén, F., & Álvarez-Malé, M. L. (2010). Relación entre los motivos de la práctica deportiva y la ansiedad en jóvenes nadadores de competición. [Relationship between the reasons for sports practice and anxiety in young competition swimmers]. *Revista iberoamericana de psicología del ejercicio y el deporte, 5(2),* 233-252. Retrieved from https://www.redalyc.org/articulo.oa?id=311126268005

Hanton, S., O´ Brien, M., & Mellalieu, S. D. (2003). Individual differences, perceived control and competitive trait anxiety. *Journal of Sport Behaviour, 26(1),* 39-55. Retrieved from https://www.researchgate.net/profile/Stephen_Mellalieu/publication/284771775_Individual_differences_perceived_control_and_competitive_trait_anxiety/links/5720752108aeaced788adb7b/Individual-differences-perceived-control-and-competitive-trait-anxiety.pdf

Jaenes, J. C., Peñaloza, R., Navarrete, K. G. & Bohórquez, M. R. (2012). Ansiedad y autoconfianza precompetitiva en triatletas [precompetitive anxiety and self-confidence in triathletes]. *Revista Iberoamericana de Psicología del Ejercicio y el Deporte, 7(1),* 113-124. Retrieved from https://dialnet.unirioja.es/servlet/articulo?codigo=3967899

Kaplánová, A. (2019). Self-esteem, anxiety and coping strategies to manage stress in ice hockey. *Acta Gymnica, 49(1),* 10-15. Retrieved from https://doi.org/10.5507/ag.2018.026

Kevereski, L., Dimovska, M. K., & Ristevski, D. (2016). The influence of the emotional inteligence in protection of the mental health in conditions of a psychosocial stress. I*nternational Journal of Cognitive Research in Science, Engineering and Education, 4(1),* 17. https://doi.org/10.5937/IJCRSEE1601017K

Kirubalan, G., & Gopinathan, P. (2013). Analysis of Anxiety among Different Age Groups of City League Male Cricket Players. *Academic Sport Scholar, 2(9)*, 1-4.

Knowles, A. M., Niven, A., & Fawkner, S. (2014). 'Once upon a time I used to be active'. Adopting a narrative approach to understanding physical activity behaviour in adolescent girls. *Qualitative Research in Sport, Exercise and Health, 6(1),* 62-76. https://doi.org/10.1080/2159676X.2013.766816

Lindberg, S. M., Grabe, S., & Hyde, J. S. (2007). Gender, pubertal development, and peer sexual harassment predict objectified body consciousness in early adolescence. *Journal of Research on Adolescence, 17(4)*, 723-742. https://doi.org/10.1111/j.1532-7795.2007.00544.x

Lussier, R. N., & Kimball, D. C. (2009). *Applied sport management skills.* Human Kinetics. Retrieved from https://shorturl.at/oBM03

Mahoney, M. J., Gabriel, T. J., & Perkins, T. S. (1987). Psychological skills and exceptional athletic performance. *The sport psychologist, 1(3)*, 181-199. https://doi.org/10.1123/tsp.1.3.181

Martínez-Monteagudo, M. C., Inglés, C. J., & García-Fernández, J. M. (2013). Evaluación de la ansiedad escolar: revisión de cuestionarios, inventarios y escalas. [Evaluation of school anxiety: Review of questionnaires, inventories and scales]. *Psicología educativa, 19(1)*, 27-36. https://doi.org/10.5093/ed2013a5

Martens, R., Vealey, R. S., & Burton, D. (1990). *Competitive anxiety in sport.* Human kinetics. Retrieved from http://shorturl.at/CEHQ3

Muniz, M., & Fernandes, D. C. (2016). Autoconceito e ansiedade escolar: um estudo com alunos do ensino fundamental. [Self-concept and school anxiety: a study with elementary school students]. *Psicologia Escolar e Educacional, 20(3),* 427-436. https://doi.org/10.1590/2175-353920150203784

Navlet, M. R. (2012). Ansiedad, estrés y estrategias de afrontamiento en el ámbito deportivo: Un estudio centrado en la diferencia entre deportes [Anxiety, stress and coping strategies in sports: A study focused on the difference between sports]. *Disertación doctoral,* Universidad Complutense, Madrid, Spain. Retrieved from https://dialnet.

unirioja.es/servlet/cittes?codigo=94942

Nuñez-Prats, A., & García-Mas, A. (2017). Relación entre el rendimiento y la ansiedad en el deporte: una revisión sistemática [Relationship between performance and anxiety in sports: a systematic review]. *Retos: nuevas tendencias en educación física, deporte y recreación, (30)*, 172-177. Retrieved from https://recyt.fecyt.es/index.php/retos/article/view/53297/33667

Olmedilla, A., Ruiz-Barquín, R., Ponseti, F. J., Robles-Palazón, F. J., & García-Mas, A. (2019). Competitive psychological disposition and perception of performance in young female soccer players. *Frontiers in psychology, 10*. https://doi.org/10.3389/fpsyg.2019.01168

Olmedilla, A., Torres-Luque, G., García-Mas, A., Rubio, V. J., Ducoing, E., & Ortega, E. (2018). Psychological profiling of triathlon and road cycling athletes. *Frontiers in psychology, 9*. https://doi.org/10.3389/fpsyg.2018.00825

Peráčková, J., Chovancová, A., Kukurová, K., & Plevková, L. (2018). Self-evaluation of body image in sport active and sport inactive adolescent girls. *Acta Gymnica, 48(3)*, 109-114. https://doi.org/10.5507/ag.2018.014

Ponseti, F. J., García-Mas, A., Cantallops, J., & Vidal, J. (2017). Diferencias de sexo respecto de la ansiedad asociada a la competición deportiva [Sex differences regarding anxiety associated with sports competition]. *Retos, 31*, 193-196.

Pozos, B. E., Preciado, M. L., Acosta, M., Aguilera, M. A., & Delgado, D. D. (2014). Academic stress as a predictor of chronic stress in university students. *Psicología Educativa, 20*, 47-52. https://doi.org/10.1016/j.pse.2014.05.006

Ramis, Y., Torregrosa, M., Viladrich, C., & Cruz, J. (2010). Adaptación y validación de la versión española de la Escala de Ansiedad Competitiva SAS-2 para deportistas de iniciación. [Adaptation and Validation of the Spanish Version of the SAS-2 Competitive Anxiety Scale for Initiating Athletes]. *Psicothema, 22(4),* 10004-1009. Retrieved from https://www.redalyc.org/articulo.oa?id=72715515070

Ruiz-Juan, F., Zarauz, A., & Flores-Allende, G. (2016). Ansiedad precompetitiva en corredores de fondo en ruta en función de sus variables de entrenamiento [Pre-competitive anxiety in back-road runners based on their training variables]. *Retos, 30*, 110-113. Retrieved from https://recyt.fecyt.es/index.php/retos/article/view/43674/30461

Silveira, K. A., Enumo, S. R. F., & Batista, E. P. (2014). Indicadores de estresse e estratégias de enfrentamento em professores de ensino multisseriado. [Stress indicators and coping strategies in multi-grade teaching teachers]. *Psicologia Escolar e Educacional, 18(3)*, 457-465. https://doi.org/10.1590/2175-3539/2014/0183767

Singh, M. N., Maibam, A. R., & Singh, K. (2013). A comparative study of sports competition anxiety between male and female inter-collegiate badminton players of Manipur. *Indian Streams Research Journal, 3(9)*, 1-2.

Stefani, G., Andrés, L., & Oanes, E. (2014). Transformaciones lúdicas. Un estudio preliminar sobre tipos de juego y espacios lúdicos. [Playful transformations. A preliminary study on type of play and type of setting]. *Interdisciplinaria, 31(1),* 39-55. https://doi.org/10.16888/interd.2014.31.1.3

Ujwala, K., & Jigmat, D. (2011). Comparative study of sports competitive anxiety, among state level baseball players. *International Referred Research Journal, 34(3)*, 9-10.

DESIGNING E-LEARNING ENVIRONMENT BASED ON STUDENT PREFERENCES: CONJOINT ANALYSIS APPROACH

Dr. Marija Kuzmanović, University of Belgrade, Faculty of Organizational Sciences, Serbia
E-mail: marija.kuzmanovic@fon.bg.ac.rs
Dr. Jelena Andjelković Labrović, University of Belgrade, Faculty of Organizational Sciences, Serbia
E-mail: jelena.andjelkovic.labrovic@fon.bg.ac.rs
Dr. Ana Nikodijević, University of Belgrade, Faculty of Organizational Sciences, Serbia
E-mail: ana.nikodijevic@fon.bg.ac.rs

ARTICLE INFO

Original Research
Received: October, 07.2019.
Revised: November, 14.2019.
Accepted: November, 28.2019.
doi: 10.5937/IJCRSEE1903037K

UDK
37.018.43:004
371.39

Keywords:
e-learning,
student preferences,
conjoint analysis,
heterogeneity,
segmentation.

ABSTRACT

The aim of this paper was to determine students' preferences towards e-learning environment in order to select and design its components that suit the needs of student's best. The research was implemented using conjoint analysis. Three dimensions of interest were considered: e-learning technology, teaching method and knowledge assessment and the results show that knowledge assessment is the most important e-learning attribute for both traditional and online students. Adding into consideration the teaching method as well, further analysis showed that students can be profiled in two segments: oriented on results or process, which can be used at the beginning of studies to adjust e-learning environment. Research findings emphasized student preferences as essential for designing e-learning system, while student satisfaction turned out to be a key factor determining their persistence for studying in e-learning environment. Finally, recommendations for improvement of existing e-learning system were given.

1. INTRODUCTION

In recent years, e-learning has become a sustainable delivery system for all educational levels (Yu, Yu and Lin, 2010). Rosenberg, and Foshay (2002) defined e-learning as the use of Internet technologies for delivering different solutions that enhance knowledge and performance. In educational process e-learning could be seen as content delivery method that enables synchronous and asynchronous information exchange over the network (Oncu and Cakir, 2011).

The goal of an educator in modern educational settings should be to design online courses that are interactive and learner-centered. For an effective online course delivery very important part is the e-learning environment design. The online learning environment, in addition to sensibility and awareness, also requires an understanding of the online learners and the challenges they face (Conrad, 2008). Black, Ferdig and DiPietro (2008) highlighted in their research the importance of the e-learning environment through a factor they classified as a case instance rating. As opposed to a course content evaluation, course instance evaluations focus on the classroom environment, community and grades, so it should involve "a specific teacher, a group of students, a course, and a particular learning management system" (Black et al., 2008). A key component in the e-learning environment is the student. Therefore, understanding how student characteristics can influence the teaching and learning process in an online environment is crucial to design effective e-learning instruction (Roberts, 2010).

Although curriculum delivery via learning management systems is widespread within university practices all over the world, it has only recently emerged in Serbia. Faculty of Organizational Sciences, University of

Corresponding Author
Dr. Marija Kuzmanović, University of Belgrade,
Faculty of Organizational Sciences
E-mail: marija.kuzmanovic@fon.bg.ac.rs

Belgrade (FON), is one of the first schools in Serbia that accredited e-learning studying program for 60 students per year. The accredited program has been implemented since 2010 with 46 courses using Moodle platform. Main reason for conducting this research is authors' desire to improve existing application of this e-learning system. It is indicative that students usually transfer from e-learning to traditional type of studying when given the opportunity. Previous experience also shows that students are less engaged in studying after first year and when they enroll in final year of studying they usually do not use implemented e-learning system at all. This is verified by the fact there is only 6 courses on final year of studies and extremely little student engagement, when compared to all 14 courses on first year and full student engagement. This research is focused on finding some of the reasons for this problem.

The premise underlying this study is that students prefer certain online components more than others and that it is possible to determine which ones most affect their attitudes. Accordingly, the study does not examine specific courses but a diverse sample of students who are engaged in: (a) fully online studying through a Moodle learning environment, (b) traditional offline, face to face studying with some experience with blended courses (combination of traditional and e-learning), (c) attending open online courses outside curricula (edX, Coursera, etc.). Horvat, Dobrota, Krsmanovic and Cudanov (2014) examined students' perceptions of e-learning courses on the Moodle platform at FON and concluded that students using Moodle only before the exam were significantly less satisfied than students using it on a daily basis. They suggested that feedback on the quality features from students who do not use Moodle regularly should be taken into account.

In this study we attempt to determine students' preferences for using the e-learning system with the goal of improving the existing one at FON. Another research objective is of greater importance because it indicates how student preferences can be used to select e-learning system components during the development process to reduce dropout of distance learning students.

To evaluate students' preferences towards the effectiveness of e-learning course, this study employs a multivariate research technique Conjoint analysis. Conjoint analysis is based on the assumption that any service can be described as a combination of different levels of multiple attributes and implies that individuals evaluate services by considering jointly those attributes.

Conjoint analysis has been successfully applied in the education industry for many years to reveal students' preferences for different aspects of education (Tashchian and Freiden, 1983; Soutar and Turner, 2002; Sohn and Ju, 2010; Taylor, Humphreys, Singley, and Hunter, 2004; Won and Bravo, 2009; Kuzmanovic, Savic, Popovic and Martic, 2013; Azarcon, Gallardo, Anacin and Velasco, 2014; Zwarts, Vanthournout, Gijbels and Van den Bossche, 2015; Popović, Vagić, Kuzmanović and Anđelković Labrović, 2016; Walsh and Cullinan, 2017; Carey et al., 2018).

However, only a few studies have so far used conjoint analysis within e-learning environment. Van Der Rhee, Verma, Plaschka and Kickul (2007) used choice-based conjoint analysis to understand student preferences for e-learning technologies. Pomales-Garcia, Yili and Lopez (2009) evaluated the relative importance of six design dimensions from both student and researcher perspective. Dağhan and Akkoyunlu (2012) used conjoint analysis to measure students' preferences for e-learning styles. Sun and Wang (2014) used conjoint analysis to design and development of e-learning tools in higher education depending on learning tasks. Recently, some researchers used conjoint analysis to understand the preference towards online learning in developing countries (Malarkodi, Indumathi, and Praveena, 2018; Acharya and Lee, 2018).

2. RESEARCH FRAMEWORK

The aim of this study was to gain a broad insight into the preferences of e-learning students in Serbia and to explore factors that most contribute to their satisfaction. Following research questions were in focus: Which e-learning components do students prefer? Can students be profiled in different segments according to their preferences? And if so, what can be done to meet the needs and wants of particular groups of students? Three dimensions of interest were defined: e-learning technology, teaching method and knowledge assessment. They were chosen by considering previous research (Katz, 2002; Ferguson and DeFelice, 2010; Won and Bravo, 2009) and authors' own experience in teaching in e-learning environments.

The learning environment or technology used for teaching is important because

students' satisfaction with e-learning is based on their attitude towards ICT (Malik, 2009). Technology is generally not a barrier to the success of participants in e-learning and most students have necessary skills to fully engage in e-learning environments. Drennan, Kennedy and Pisarski (2005) found that student satisfaction is influenced by positive perceptions towards technology, in terms of ease of access.

Teaching method is the most complex dimension as it comprises several different aspects, mainly related to interaction. According to several authors (Bouhnik and Marcus, 2006; Katz, 2002), interaction is one of the most important factors of e-learning, and can be analyzed on several levels: interaction with content, teacher, other students and the system. Mijatovic, Cudanov, Jednak and Kadijevich (2013) conducted a survey among students who use the Moodle platform for the first time and concluded that active participation in the class along with interactive use of the system has a strong positive impact on student achievement. Bouhnik and Marcus (2006) found that one of the things students are dissatisfied with is the lack of contact and interaction with peers. Jung, Choi, Lim and Leem (2002) revealed that students who interacted with each other expressed the highest degree of satisfaction. Nummenmaa and Nummenmaa (2008) came to similar conclusion, finding that students who did not interact with others had more negative emotional experiences. The teacher's role is very important and their timely response has a positive effect on student satisfaction (Malik, 2009). Clearly defined objectives, assignments and deadlines, must be present to increase student satisfaction as well (Stein, 2004).

We found no research results in the literature regarding student preferences in knowledge assessment (structure of knowledge assessment, summative assessment design) within e-learning environment, but we believe this dimension might have an impact on students' satisfaction and therefore we included it in this study. The details on all three dimensions are given below.

3. SURVEY PROCEDURE

In order to measure students' preference towards key attributes of the e-learning environment, this study followed five key steps:

1. Specifying key attributes and attribute levels;
2. Choosing a presentation method and construction of efficient experimental design;
3. Questionnaire design and research implementation
4. Model specification and the estimation technique selection
5. Cluster analysis.

The study should include all student-relevant attributes that can be managed by the university. Attribute levels must be credible, effective and capable of being traded-off against each other. Usually, attributes and levels are determined by reviewing the research literature and conducting pilot research, but also taking into account expert opinions. In this paper eight key e-learning attributes based on literature review and students and faculty members' opinion are selected (see Table 1).

Table 1. Student satisfaction with online courses

Dimension	Attribute	Level
I E-learning technology	Customize environment based on preferences	Yes
		No
	Simplicity	Simple environment, no training necessary
		Environment requires training or previous experience
II Teaching method	Lectures	Recorded lecture with slides and sound
		Classroom live broadcasting
	Interactive work (discussions, assignments, case studies etc.)	Yes
		No
	Cooperation with other students	Individual assignments
		Group assignments
	Flexibility for pre-exam assignments (clear deadlines or flexible deadlines)	Yes
		No
	Communication with teacher	Online (e-mail, chat, forums, etc.)
		Online and face-to-face
III Knowledge assessment	Method of assessment of knowledge	100% of pre-exam assignments and exam in e-learning environment
		70% of pre-exam assignments in e-learning environment and 30% offline exam
		30% of pre-exam assignments in e-learning environment, and 70% offline exam

For a given number of attributes and levels, it is possible to create 384 ($2^7 \times 3$) combinations, that is, concepts that students need to evaluate. This kind of experiment plan is called a complete factorial experimental design and because of its complexity it is rarely used in practice. An efficient, yet cognitively

acceptable design contains a subset of all concepts and is called a reduced experimental design. For the purpose of this study, we used the SPSS Orthoplan Component to generate an efficient experimental design with 16 concepts. Two holdout concepts were added to the design for the purpose of checking the quality of the respondents' responses.

Data on individuals' preferences and satisfaction were collected through an online survey distributed to both traditional students and those studying distance learning. Students were asked to rate each concept on an ordinal scale ranging from 1 ('least preferred') to 5 ('most preferred'). In addition to conjoint assignments, the questionnaire also contained a number of questions regarding the socio-demographic characteristics of students as well as their attitudes and satisfaction with their existing mode of study.

After collecting the students' answers, they need to be analyzed. A linear additive model (so called part-worth utility model) was used to model the preferences in this study. The model assumes that the total utility of any concept is estimated as the sum of the partial utilities of the attribute levels contained in that concept. Therefore, the overall utility of the concept j for the student i in a given study can be expressed as follows:

$$U_{ij} = \sum_{k=1}^{8} \sum_{l=1}^{L_k} \beta_{ikl} x_{jkl} + \varepsilon_{ij}, \quad i = 1,\ldots,I, \; j = 1,\ldots,J$$

where k denotes an attribute and Lk is the number of levels of a given attribute. βikl is student i's utility associated to the level l of the attribute k (part-worth utility). An independent variable xjkl indicate the presence (xjkl = 1) or absence (xjkl =0) of the level l of the attribute k in the concept j. ε_{ij} is a stochastic error. Given that each concept should contain exactly one level of each attribute, the following condition must be met:

$$\sum_{l=1}^{L_k} x_{jkl} = 1, \quad j = 1,\ldots,J, k = 1,\ldots,8.$$

Using the collected ratings 16 concepts from the experimental design, the βikl parameters are estimated by the least-squares method. Estimated values provide a quantitative measure of the preference for each attribute level, with higher values corresponding to a greater preference. The relative importance of an attribute k for student i can be calculated as follows:

$$RI_{ik} = \frac{UR_{ik}}{\sum_{k=1}^{K} UR_{ik}}, \quad i = 1,\ldots,I, \; k = 1,\ldots,8 .$$

where UR is the utility range i.e. the difference between highest and lowest partial utility values for each attribute. Importance scores can be further aggregated to include students with similar preferences.

Understanding what students most value in studying allows university management to tailor study system and programs to communicate those benefits and redesign existing system with those benefits in mind. This is especially important if there is heterogeneity in student preferences. There are two main approaches for identifying heterogeneity in preferences. Segments can be identified either a priori, according to variables known in advance, or post hoc based on individual preferences revealed by conjoint analysis. Both the part-worth utilities and the resulting importance ratings can be used as an inputs in cluster analysis.

4. RESULTS

4.1. Sample characteristics

A total of 121 students completed the questionnaire. Six responses (4.94%) were excluded from the analysis either because of incompleteness or inconsistency of the answers, so the total number of valid answers used in the further analysis was 115 (95.04%). The sample consisted of 39 (33.9%) male and 76 (66.1%) female participants, aged 21.5 (SD=1.789) in average. When it comes to mode of studying, 70 (60.9%) traditionally-taught respondents and 45 (39.1%) of them are online students. Most students (96.50%) took at least one course through Moodle during the studies (Table 2).

Table 2. Student satisfaction with online courses

		Number of respondents	Mean	Min	Max
Mode of studying	Traditional	66	3.96	2	5
	Online	45	2.88	1	4
	Total	111	3.54	1	5
Open online courses out-side curric-ula	Coursera	15	4.56	3	5
	edX	4	4.75	4	5
	Other	5	4.60	3	5
	Total	24	4.60	3	5

Traditional students are more satisfied with this learning platform (average score of 3.96 out of 5), than online students (with average score of 2.88). Looking at the range of scores, it is obvious that none of traditional students gave grade 1 to Moodle, and none of the online students gave grade 5. The assumption behind this fact is that traditional students mostly took one online course while online students took all or most courses online. These courses are usually designed and applied according to teachers' preferences and different Moodle components. There are 21 (18.26%) students who took one or more open online courses outside curricula (24 graded courses). Average grade for these courses is 4.60, meaning that all those courses are graded much higher in comparison to core studies. None of open online courses was graded with 1 or 2.

4.2. Aggregated students' preferences

We used the SPSS 16.0 to estimate the model parameters both individually for each student in the sample and aggregated for the sample as a whole (see Table 3). Higher values of utility part-worth utility values indicate a stronger preference. Kendall's tau statistics and Pearson coefficient were used to evaluate the internal and predictive validity of the model. The values of 0.924 and 0.988 respectively indicate a high predictive validity of the model and confirms significance of the estimated parameters. Kendall's tau with value of 1.000 for the two holdout concepts further confirms the quality of respondents' answers.

Table 3 shows that method of assessment of knowledge was found to have the most significant influence on students' preferences in e-learning environment with a relative importance of 23.76%. The importance of other attributes is by far lower, whereas flexibility for preexam assignments was regarded as the least-valued attribute (7.69%). Looking at the most important attribute, students prefer the option to do all of preexam assignments and final exam in e-learning environment. Students also have positive but lower preferences towards the option to do 70% of preexam assignments in e-learning environment. The last attribute level (30% of preexam assignments in e-learning environment) has a negative impact on their preferences.

Higher values of standard error for estimated parameters indicate there is heterogeneity in students' preferences. Based on data in Table 3 it is obvious that standard error is somewhat higher for method of assessment of knowledge, and therefore it is expected that students' preferences for this attribute are heterogeneous.

Table 3. Aggregated part-worth utilities and importance of e-learning attributes

Attribute	Attribute level	Part-worths	Std. error	Attributes importance
Customize environment based on preferences	Yes	0.105	0.023	9.31%
	No	-0.105	0.023	
Simplicity	Simple environment, no training necessary	0.172	0.023	12.36%
	Requires training or previous experience	-0.172	0.023	
Lectures	Recorded lecture with slides and sound	0.057	0.023	13.24%
	Classroom live broadcasting	-0.057	0.023	
Interactive work	Yes	0.240	0.023	14.20%
	No	-0.240	0.023	
Cooperation with other students	Individual assignments	0.004	0.023	9.48%
	Group assignments	-0.004	0.023	
Flexibility for pre-exam assignments	Yes	0.021	0.023	7.69%
	No	-0.021	0.023	
Communication with teacher	Online (e-mail, chat, forums, etc)	-0.120	0.023	9.96%
	Online and face-to-face	0.120	0.023	
Method of assessment of knowledge	100% of exam in e-learning environment	0.126	0.030	23.76%
	70% of pre-exam assignments in e-learning envir.	0.022	0.035	
	30% of pre-exam assignments in e-learning envir.	-0.148	0.035	
Constant		3.165	0.024	

4.3. Preferences of traditional vs. online students

To determine if there are differences in preferences of traditional and online students, an analysis was done separately for these two predefined segments. Looking at the aggregated and segment-level data shown in Figure 1, it can be noticed that they do not differ significantly when it comes to relative importance of attributes.

A deeper analysis of individual partworths showed heterogeneity in student preferences, which led to a post-hoc cluster analysis using k-means procedure.

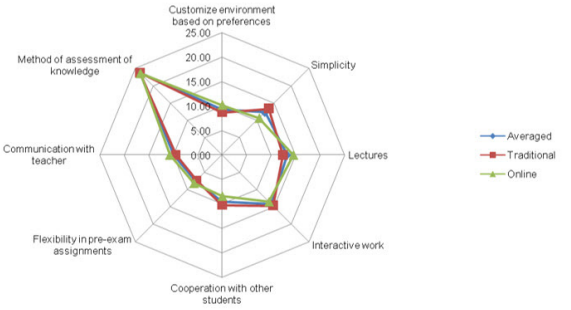


Figure 1. Attribute importance scores (%) for a priori defined segments

Due to the limited sample size, two- and three-cluster solutions were analyzed. The 3-cluster solution was rejected because of small cluster ($n < 10$) that could not be statistically reliable. Accordingly, a 2-cluster solution was chosen and statistical significance of solution was confirmed by ANOVA (Table 4).

Table 4. Part-worth utilities for identified segments

Attribute	Attribute level	Part-worth utlity		Sig.
		Segment 1	Segment 2	
Customize environment based on preferences	Yes	0.101	0.109	0.825
	No	-0.101	-0.109	0.825
Simplicity	Simple environment, no training necessary	0.201	0.145	0.219
	Environment requires training or previous experience	-0.201	-0.145	0.219
Lectures	Recorded lecture with slides and sound	0.185	-0.061	0.000
	Classroom live broadcasting	-0.185	0.061	0.000
Interactive work	Yes	0.215	0.264	0.341
	No	-0.215	-0.264	0.341
Cooperation with other students	Individual assignments	-0.019	0.026	0.361
	Group assignments	0.019	-0.026	0.361
Flexibility for pre-exam assignments	Yes	0.076	-0.030	0.002
	No	-0.076	0.030	0.002
Communication with teacher	Online (e-mail, chat, forums, etc.)	-0.097	-0.141	0.297
	Online and face-to-face	0.097	0.141	0.297
Method of assessment of knowledge	100% of exam in e-learning environment	0.480	-0.199	0.000
	70% of pre-exam assignments in e-learning envir.	0.067	-0.019	0.169
	30% of pre-exam assignments in e-learning envir.	-0.547	0.218	0.000

Table 4 shows significant difference in preferences of isolated clusters according to the three attributes: lectures, flexibility for pre-exam assignments and method of knowledge assessment. When it comes to these three attributes, cluster members prefer their opposite levels. Although there is no statistically significant difference in preferences for the attribute of interactive work, it is important for both segments and should be taken into account.

A comparative overview of attributes importance by segments and within total sample is presented in Figure 2.

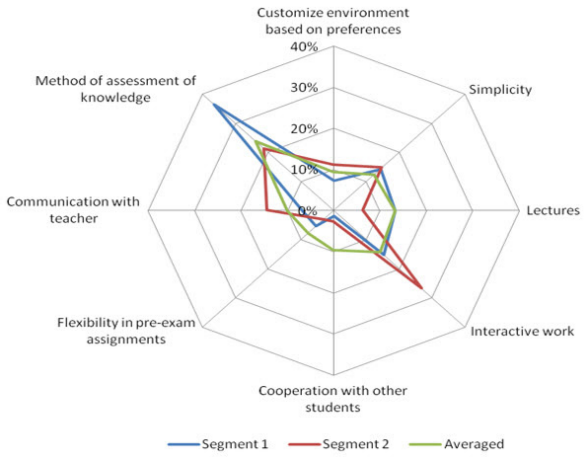


Figure 2. Importance rating (%) of e-learning attributes for post hoc defined segments and whole sample

It is noticeable from figure 2 there is key difference between two identified segments in attributes method of assessment of knowledge and interactive work. These are at the same time most important ones in one segment and second important in opposite segment. Significant difference can be seen with attributes lectures and communication with teacher. First segment gives priority to lectures while second one has higher regard for communication. Two least important attributes for both segments are cooperation with other students and flexibility for preexam assignments (clear deadlines or flexible deadlines). These results differ from everyday teaching practices, as flexible deadlines are usually the cause for non-compliance with preexam assignments and exam failures. Looking at this from the perspective of teachers, clear deadlines are important attribute.

The profile of students in two segments was created based on observed differences in preferences. First segment consists of students oriented on results while the second segment is oriented on process (Figure 3).

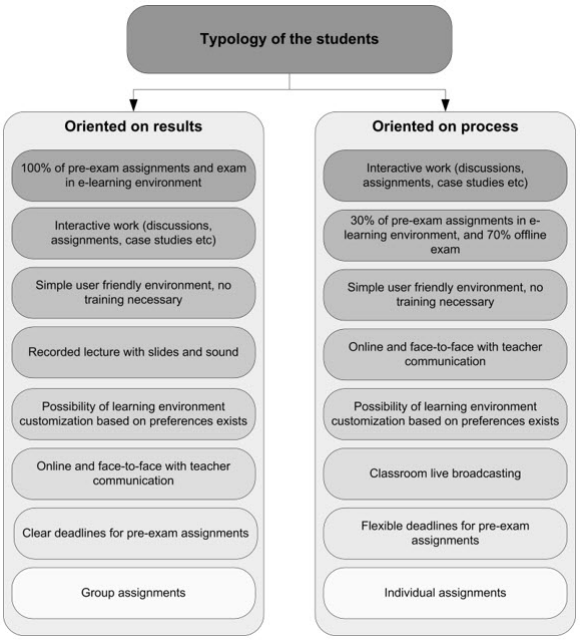


Figure 3. Typology of students based on their learning preferences

Segment of students "results oriented" includes 55 students (48%). Most important attribute for them is method of knowledge assessment (36.48%) and they prefer 100% of pre-exam assignments and exam in e-learning environment. Interactive work, simplicity and lectures are approximately of similar importance, but their significance is half less in comparison with examination method (from 13% to 15%). Least important attributes are cooperation and flexibility. This segment also prefers group assignments and recorded lectures with slides/sound and clear assignment deadlines. Students in this cluster can be profiled more in detail: they are predominantly in their final year of studies, studying in traditional mode (44 out of 55 are traditional students, only 11 are online students). Most students in this cluster gave online courses grades 4 or 5.

Segment of students "process oriented" consists of 60 students (52%). Most important attribute is interactive work (26.77%), followed by method of knowledge assessment. They differ from first segment as they prefer 70% of pre-exam assignments in e-learning environment and 30% offline exam. Looking at previous simplicity and communication they are in agreement with first segment both in levels and importance of these two attributes. Although, this group of students prefer flexible deadlines and classroom live broadcasting. They can be profiled in detail as: students of junior years of study in e-learning

environment (34 out of 60).

5. DISCUSSION AND CONCLUSIONS

The findings of this study based on conjoint analysis represent the first empirical insights into students' preferences for an e-learning environment in Serbia. Three dimensions of interest were considered in this study: e-learning technology, teaching method and knowledge assessment. The last one was determined to be the most important one for both traditional and online students, but further analysis showed that two clusters could be identified based on their preferences not just on knowledge assessment but teaching method as well. Potential limitation of this research in data analysis is in students' individual perceptions of learning environments. They perceive that environment in which they have less experience is better, meaning that student in traditional face-to-face system grade much higher e-leaning systems.

The importance of different components of e-learning systems as a part of an e-learning environment was identified in previous studies. Matsatsinis, Grigoroudis and Delias (2003) identified three satisfaction criteria: interface, content and functionality. Damnjanovic, Jednak and Mijatovic (2015) measured the effectiveness of using Moodle by considering eight factors: intention to future use, communicativeness, format, information quality, performance outcome, perceived usefulness, satisfaction and system quality. Authors find out that communicativeness influences performance outcome the most, while the system and the quality of information have no effect on satisfaction.

Based on our results, it can be concluded that student preferences are important part for designing e-learning system, while student satisfaction is the key factor determining their persistence for studying in e-learning environment. As Malik, (2009) found, the main points that lead to student satisfaction with e-learning are the students themselves, but also the teachers and technological factors.

It would be ideal to identify and classify students in two profiles (result oriented or process oriented) at the beginning of their studies and adjust the e-learning environment accordingly. Students with more experience with online environment are predominantly oriented on process, including different activities for knowledge acquisition. Our assumption is that system should be designed in a manner that offers diverse learning activities. Classroom live broadcasting, interactive work, and online and face-to-face communication with teacher are appropriate for this group. Classroom live broadcastings are expensive solution so it won't be possible for many universities to implement them for some time. But looking at the proactive practice at Harvard university it is something that every contemporarily university should stream to.

Communication with peers and teachers is the essence of interactive work. Nagel, Blignaut and Cronje (2009) concluded that only students who contribute to class discussion or interact with fellow students and the facilitator complete the course successfully. Students in online learning environments appreciate the role of the teacher as a facilitator of discussion, with the function of promoting student-to-student interactions, more than students in blended learning environments. In general, in blended learning environments instructors have more opportunities to interact with students and give them feedback during personal contact (Hung and Chou, 2015). General recommendation is that application of available communication tools in e-learning environment makes it more similar to face-to-face communication. Messengers, Skype or visual/sound records of frequently asked questions and their broadcasting can secure more comprehensive feedback to students. Also, various web tools, such as blogs, social networks (Facebook, Twitter, LinkedIn, etc.) can be used for educational purposes and to enhance student interactive work (Vaughan, Nickle, Silovs and Zimmer, 2011). This is supported by the fact that teachers have been shown to be willing and competent to use Web 2.0 for educational purposes (Jimoyiannis, Tsiotakis, Roussinos and Siorenta, 2013). Additionally, it has been shown that students and teachers view the value of using and integrating wiki into teaching and learning as positive especially for facilitating collaboration and interaction (Li, 2015).

Other cluster of students (results oriented) emphasizes knowledge assessment as most important component of e-learning environment. Although our results show they prefer 100% of knowledge assessment in online environment, we believe that this is not the key point. The key point is that the importance of second highest rated attribute is half less then knowledge assessment. General recommendation is that knowledge

assessment should be designed specifically with no regard to formative or summative assessment. Assessment could be seen as a feedback to students on their learning process as well as the official recognition of their accomplishments, achievements and final grades. Modern e-learning environment takes approach to assessment that is learner centered. Technology should enhance assessment and feedback practices rather than replace highly valued strategies such as face-to-face tutorials. Technology should be used to enhance assessment: instant feedback on test results using interactive online tests, using forums and blogs for communication, contemporary web 2.0 technologies for peer assessment and processing large groups of students.

If we look at students as our customers, these are attributes that should be addressed in order to retain them. FON does not implement them and should revise e-learning environment accordingly. Findings of our research may be useful in directing future research related to key factors essential to the adoption and effective implementation of e-learning environment, and provide a guideline for university policy makers in redesigning online mode of studying.

ACKNOWLEDGEMENTS

The authors are grateful to all participants in the research and to the editorial team for their kind and professional assistance. The above research was partially supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia [grant number TR33044].

Conflict of interests

The authors declare no conflict of interest.

REFERENCES

Acharya, B., & Lee, J. (2018). Users' perspective on the adoption of e-learning in developing countries: The case of Nepal with a conjointbased discrete choice approach. *Telematics and Informatics, 35(6),* 1733-1743. https://doi.org/10.1016/j.tele.2018.05.002

Azarcon Jr, D. E., Gallardo, C. D., Anacin, C. G., & Velasco, E. (2014). Attrition and retention in higher education institution: A conjoint analysis of consumer behavior in higher education. *Asia Pacific Journal of Education, Arts and Sciences, 1(5),* 107-118. Retrieved from http://apjeas.apjmr.com/wp-content /uploads/2014/11/APJEAS-2014-1-091.pdf

Black, E. W., Ferdig, R. E., & DiPietro, M. (2008). An overview of evaluative instrumentation for virtual high schools. *The Amer. Jrnl. of Distance Education, 22(1),* 24-45. https://doi.org/10.1080/08923640701713422

Bouhnik, D., & Marcus, T. (2006). Interaction in distance-learning courses. *Journal of the American Society for Information Science and Technology, 57(3)*, 299-305. https://doi.org/10.1002/asi.20277

Carey, J. M., Carman, K. R., Clayton, K. P., Horiuchi, Y., Htun, M., & Ortiz, B. (2018). Who wants to hire a more diverse faculty? A conjoint analysis of faculty and student preferences for gender and racial/ethnic diversity. *Politics, Groups, and Identities,* 1-19. https://doi.org/10.1080/21565503.2018.1491866

Conrad, D. (2008). Situating Prior learning assessment and recognition (Plar) in an online learning environment. *The theory and practice of online learning,* 75. Retrieved from http://biblioteca.ucv.cl/site/colecciones/manuales_u/99Z_Anderson_2008-Theory_and_Practice_of_Online_Learning.pdf#page=87

Daghan, G., & Akkoyunlu, B. (2012). An examination through conjoint analysis of the preferences of students concerning online learning environments according to their learning styles. *International Education Studies, 5(4),* 122-138. https://doi.org/10.5539/ies.v5n4p122

Damnjanovic, V., Jednak, S., & Mijatovic, I. (2015). Factors affecting the effectiveness and use of Moodle: students' perception. *Interactive learning environments, 23(4)*, 496-514. https://doi.org/10.1080/10494820.2013.789062

Drennan, J., Kennedy, J., & Pisarski, A. (2005). Factors affecting student attitudes toward flexible online learning in management education. *The Journal of Educational Research, 98(6),* 331-338. https://doi.org/10.3200/JOER.98.6.331-338

Ferguson, J. M., & DeFelice, A. E. (2010). Length of online course and student satisfaction, perceived learning, and academic performance. *The International Review of Research in Open and Distributed Learning, 11(2)*, 73-84. https://doi.org/10.19173/irrodl.v11i2.772

Green, P. E., & Rao, V. R. (1971). Conjoint measurement-for quantifying judgmental data. *Journal of Marketing research, 8(3),* 355-363. https://doi.org/10.1177/002224377100800312

Horvat, A., Dobrota, M., Krsmanovic, M., & Cudanov, M. (2015). Student perception of Moodle learning management system: a satisfaction and significance analysis. *Interactive Learning Environments, 23(4)*, 515-527. https://doi.org/10.1080/10494820.2013.788033

Hung, M. L., & Chou, C. (2015). Students' perceptions of instructors' roles in blended and online learning environments: A comparative study. *Computers & Education, 81*, 315-325. https://doi.org/10.1016/j.compedu.2014.10.022

Hur, J. S., & Pak, R. J. (2007). Conjoint analysis for the preferred subjects of elementary school computer education. *Journal of the Korean Data and Information Science Society, 18(2),* 357-364. http://www.koreascience.or.kr/article/JAKO200723421065864.page

Jimoyiannis, A., Tsiotakis, P., Roussinos, D., & Siorenta, A. (2013). Preparing teachers to integrate Web 2.0 in school practice: Toward

a framework for Pedagogy 2.0. *Australasian Journal of Educational Technology, 29(2)*. 248-267. https://doi.org/10.14742/ajet.157

Jung, I., Choi, S., Lim, C., & Leem, J. (2002). Effects of different types of interaction on learning achievement, satisfaction and participation in web-based instruction. *Innovations in education and teaching international, 39(2)*, 153-162. https://doi.org/10.1080/14703290252934603

Katz, Y. J. (2002). Attitudes affecting college students' preferences for distance learning. *Journal of computer assisted learning, 18(1)*, 2-9. https://doi.org/10.1046/j.0266-4909.2001.00202.x

Kuzmanovic, M., Savic, G., Popovic, M., & Martic, M. (2013). A new approach to evaluation of university teaching considering heterogeneity of students' preferences. *Higher Education, 66(2),* 153-171. https://doi.org/10.1007/s10734-012-9596-2

Li, K. M. (2015). Learning styles and perceptions of student teachers of computer-supported collaborative learning strategy using wikis. *Australasian Journal of Educational Technology, 31(1)*. https://doi.org/10.14742/ajet.521

Malarkodi, M., Indumathi, V. M., & Praveena, S. (2018). Preference Towards Online Mode of Distance Education Courses–conjoint Analysis. *International Journal of Bioresource and Stress Management, 9(1),* 178-182. https://doi.org/10.23910/IJBSM/2018.9.1.1858

Malik, M. W. (2009, November). Student satisfaction towards e-learning: influential role of key factors. In *Comsats international business research conference (CBRC), 2nd*. Retrieved from https://lahore.comsats.edu.pk/abrc2009/Proceedings/All%20papers/STUDENT%20SATISFACTION%20TOWARDS%20E-LEARNING%20INFLUENTIAL%20ROLE%20OF%20KEY%20FACTORS%20(mahwish%20w.%20malik).pdf

Matsatsinis, N. F., Grigoroudis, E., & Delias, P. (2003). User satisfaction and e-learning systems: Towards a multicriteria evaluation methodology. *Operational Research, 3(3)*, 249-259. https://doi.org/10.1007/BF02936404

Mijatovic, I., Cudanov, M., Jednak, S., & Kadijevich, D. M. (2013). How the usage of learning management systems influences student achievement. *Teaching in Higher Education, 18(5),* 506-517. https://doi.org/10.1080/13562517.2012.753049

Nagel, L., Blignaut, A. S., & Cronjé, J. C. (2009). Read-only participants: A case for student communication in online classes. *Interactive Learning Environments, 17(1),* 37-51. https://doi.org/10.1080/10494820701501028

Nummenmaa, M., & Nummenmaa, L. (2008). University students' emotions, interest and activities in a web-based learning environment. *British Journal of Educational Psychology, 78(1)*, 163-178. https://doi.org/10.1348/000709907X203733

Oncu, S., & Cakir, H. (2011). Research in online learning environments: Priorities and methodologies. *Computers & Education, 57(1),* 1098-1108. https://doi.org/10.1016/j.compedu.2010.12.009

Pomales-Garcia, C., Liu, Y., & Lopez, Á. D. (2009, October). Student perceptions on the importance of distance learning module design dimensions. *In 2009 39th IEEE Frontiers in Education Conference (pp. 1-5). IEEE.* https://doi.org/10.1109/FIE.2009.5350864

Popović, M., Vagić, M., Kuzmanović, M., & Anđelković Labrović, J. (2016). Understanding heterogeneity of students' preferences towards English medium instruction: A conjoint analysis approach. *Yugoslav Journal of Operations Research, 26(1)*. 91-102. https://doi.org/10.2298/YJOR140915009P

Roberts, R. M. (2010). The digital generation and web 2.0: E-learning concern or media myth?. In *Handbook of Research on Practices and Outcomes in E-Learning: Issues and Trends* (pp. 93-115). IGI Global. https://doi.org/10.4018/978-1-60566-788-1.ch006

Rosenberg, M. J., & Foshay, R. (2002). E-learning: Strategies for delivering knowledge in the digital age. *Performance Improvement, 41(5),* 50-51. https://doi.org/10.1002/pfi.4140410512

Sohn, S. Y., & Ju, Y. H. (2010). Conjoint analysis for recruiting high quality students for college education. *Expert Systems with Applications, 37(5),* 3777-3783. https://doi.org/10.1016/j.eswa.2009.11.043

Soutar, G. N., & Turner, J. P. (2002). Students' preferences for university: A conjoint analysis. *International journal of educational management, 16(1)*, 40-45. https://doi.org/10.1108/09513540210415523

Stein, D. (2004). Student satisfaction depends on course structure. *Online Classroom, 2(1), 5.*

Sun, J., & Wang, Y. (2014). Tool choice for e-learning: Task-technology fit through media synchronicity. *Information Systems Education Journal, 12(4),* 17. https://isedj.org/2014-12/n4/ISEDJv12n4p17.html

Tashchian, R. O., & Freiden, J. B. (1983). Student Preferences for Class Scheduling: A Conjoint Analysis. *Journal of Marketing Education, 5(3),* 42-48. https://doi.org/10.1177/027347538300500309

Taylor, S. A., Humphreys, M., Singley, R., & Hunter, G. L. (2004). Business student preferences: Exploring the relative importance of web management in course design. *Journal of Marketing Education, 26(1),* 42-49. https://doi.org/10.1177/0273475303262352

Van Der Rhee, B., Verma, R., Plaschka, G. R., & Kickul, J. R. (2007). Technology readiness, learning goals, and eLearning: Searching for synergy. *Decision Sciences Journal of Innovative Education, 5(1),* 127-149. https://doi.org/10.1111/j.1540-4609.2007.00130.x

Vaughan, N., Nickle, T., Silovs, J., & Zimmer, J. (2011). Moving To Their Own Beat: Exploring How Students Use Web 2.0 Technologies To Support Group Work Outside Of Class Time. *Journal of Interactive Online Learning, 10(3)*. Retrieved from https://www.ncolr.org/jiol/issues/pdf/10.3.1.pdf

Walsh, S., & Cullinan, J. (2017). Factors Influencing Higher Education Institution Choice. In *Economic Insights on Higher Education Policy in Ireland* (pp. 81-108). Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-319-48553-9_4

Won, D., & Bravo, G. A. (2009). Course design in sport management education: Addressing students' perspectives through conjoint methodology. *Journal of Hospitality, Leisure, Sports and Tourism Education (Pre-2012), 8(2),* 83-

96. Retrieved from https://s3.amazonaws.com/academia.edu.documents/44541893/Course_design_in_sport_management_educat20160408-4990-ie8pql.pdf?response-content-disposition=inline%3B%20filename%3DCourse_design_in_sport_management_educat.pdf&X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIWOWYYGZ2Y53UL3A%2F20191204%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20191204T080341Z&X-Amz-Expires=3600&X-Amz-SignedHeaders=host&X-Amz-Signature=4eef262214aa3ea35f263a85042035484d63b9a8cf5e362cbee15420e43d1e04

Yu, C., Yu, W. C. W., & Lin, C. F. (2010). ComputerMediated Learning: What Have We Experienced and Where Do We Go Next?. In *Handbook of research on practices and outcomes in e-learning: Issues and Trends (pp. 1-18). IGI Global.* https://doi.org/10.4018/978-1-60566-788-1.ch001

Zwarts, T. M., Vanthournout, G., Gijbels, D., & Van den Bossche, P. (2015). Exploring conjoint analysis as a methodology to study implicit preferences within the context of educational and training sciences. *Methodological challenges in research on student learning, 1*, 77-91. Retrieved from https://hdl.handle.net/10067/1296470151162165141

RELATIONSHIP BETWEEN THE QUALITY OF HIGHER EDUCATION AND BALKAN COUNTRIES' COMPETITIVENESS

Dr. Tanja Stanišić, University of Kragujevac, Faculty of Hotel Management and Tourism in Vrnjačka Banja, Serbia, E-mail: tanja.stanisic@kg.ac.rs
Dr. Miljan Leković, University of Kragujevac, Faculty of Hotel Management and Tourism in Vrnjačka Banja, Serbia, E-mail: m.lekovic@kg.ac.rs
Dr. Lazar Stošić, The Association for the Development of Science, Engineering and Education, Serbia
E-mail: lazarstosic@yahoo.com

ARTICLE INFO

Original Research
Received: October, 25.2019.
Revised: November, 15.2019.
Accepted: November, 25.2019.
doi: 10.5937/IJCRSEE1903049S

UDK
378.014.5(497)

Keywords:
Balkan countries,
competitiveness,
development,
education,
higher education.

ABSTRACT

The main purpose of the research is to determine the link between the quality of higher education and the competitiveness level of the Balkan countries. In addition, the goal is to identify critical factors in the field of higher education that require improvement. The methods used in the paper are comparative analysis, descriptive statistics, correlation analysis, cluster analysis and benchmarking analysis. The results of the research point to the fact that there is no high positive correlation between the quality of higher education and the competitiveness level of the Balkan countries. However, it is noticed that the Balkan countries record better results when it comes to higher education than the level of competitiveness. Apart from the necessity of improving certain domains of higher education, the priority of the education policy and development policy makers in the Balkan countries should be the utilization of the results achieved in education in the function of improving competitiveness.

1. INTRODUCTION

One of the engines of economic development in social, community and individual level is human capital. "In developed, as well as in developing countries, the key engine for economic growth has been the group of people with the generally high level of education, motivation and dedication" (Balkyte and Tvaronavičiene, 2010, p. 349). Also, human resources make up the most valuable asset of modern organizations and the only real basis for creating competitive advantage (Petrović and Živković, 2017, p. 88). The process of globalisation emphasizes knowledge as the basic value and "requires educated people who will be able to adapt to social, economic, and cultural changes" (Krstić et al., 2015, p. 750; Hebibi et al., 2019, p. 118). "Knowledge is the certain source of competitive advantage for business systems and the key factor of economic development of any country in terms of the dynamic competitive struggle in the global market" (Krstić and Stanišić, 2013, p. 152; Radovanović and Rendulić, 2017, p. 102). On the other hand, "higher education is of crucial importance in the development of production systems, implementation of new technologies and management systems at the point where strategic decisions are taken in a country" (Keser, 2015, p. 59; Stošić, 2015, p. 113). Knowledge and higher education are the strategic factors that "have produced important changes in what is now framed as the education industry" (Sum and Jessop, 2013).

Nowadays, in the era of knowledge economy, there is a close connection between knowledge and higher education and economic performances on the micro and macro level. Education is indeed a highly relevant topic for international development and is considered

Corresponding Author
Dr. Tanja Stanišić, University of Kragujevac, Faculty of Hotel Management and Tourism in Vrnjačka Banja, Serbia, E-mail: tanja.stanisic@kg.ac.rs

"both as a development goal and a means to its achievement" (Cremin and Nakabugo, 2012). Education has been regarded for decades as valuable for economic development, but this perspective evolved to "include dimensions of social, economic and human development, such as health, education, gender, political and environmental considerations, linked to participation in social, political, economic and cultural life" (Persaud, 2017). Higher education is, therefore, essential for human development (Schofer and Meyer, 2005) and is a major source of societal transformations by empowering "students to act as change agents in their future professional and societal environments" (Fonseca et al., 2018).

Predictions for the future indicate that this millennium, in the field of economics, will be marked by the dominance of the competitive advantages based on technology, skills and abilities (Stanišić and Leković, 2018; Đurić et al., 2018). When it comes to skills and abilities, adult education is emerging as an important element of competitiveness and a fundamental premise of economic growth and development in times of rapid changes and global movements. Education is seen as central to economic competitiveness, the reduction of poverty and inequality, and environmental sustainability (Lauder et al., 2006). Investment in education strengthens the competitiveness of the economy, which is very important for the struggle against the crisis and the inclusion of one country in the international distribution of labour. Researchers underlined the importance of the role that the national funding mechanism plays in reforms and designing a competitive industry of higher education (Cretan and Gherghina, 2015). On the other hand, "higher education is being regarded as a terrain increasingly characterised by privatisation, profit making and competitiveness" (Mayo, 2009, p. 95). The rapid and dynamic changes which characterize modern society do not overlook the area of higher education.

The only preferred way of adjusting higher education to changes is an adequately conceived reform process. Slow implementation of reforms in key areas of education can lead to limited economic growth and stagnation of the country's competitiveness on a global level. As part of the reform measures, many authors propose measures to improve the competitiveness of the higher education system in their research (Kovaleva et al., 2015), such as increased transparency (Van der Wende, 2000) and measures of evaluation and surveying of competitiveness of higher education (Kabók et al., 2013; Stonkiene et al., 2016). Competitive higher education is the first step towards the use of achievements in this field in the function of improving the country's global competitiveness.

It could be seen that many researches, publications, scientific papers are dedicated to higher education and its role in overall development. Also, correlation between the quality of the higher education system and the level of competitiveness of the country is the subject of numerous researches. Pavlin and Svetlicic (2012), exploring the example of nineteen European countries, conclude that more competitive countries have developed higher education systems with more practically oriented studies and a higher workload. Sekuloska (2014) finds very strong positive relationship between the quality of the education system and competitiveness in the case of advanced European Union members. Keser (2015) researches the effects of higher education on the global competitiveness of the countries of the European Union and the Middle East, and emphasizes that countries that attach great importance to higher education are also countries with a high level of competitiveness. Aleksejeva (2016) concludes that "there is a high degree of correlation between higher education and the global competitiveness of the Baltic and Nordic countries". Şener and Sarıdoğan (2011) stand higher education as one of the key resources for the development of science-technology-innovation based competitiveness. Author Lane (2012) emphasizes that "as countries move into more advanced economic stages, higher education becomes increasingly important".

In addition to numerous studies that emphasize the positive link between the quality of higher education and competitiveness and empirically confirm this relationship on the sample of developed countries, not so many authors research the interdependence between the quality of higher education and competitiveness in developing countries. Therefore, the above mentioned interdependence in the Balkan countries is being examined in the paper. The purpose of this research is to assess the position of the Balkan countries towards the obtained level of higher education quality. The objective of the research is to identify the interdependence between the quality of higher education and the achieved level of competitiveness of the Balkan countries. The results of the research

are divided into several sections. The analysis of the relative position of the Balkan countries according to indicators of the quality of higher education, among themselves and in relation to the countries of good practice, is carried out in the section dedicated to cross-country comparison. The next section is devoted to the examination of the interdependence between higher education and competitiveness, or the correlation between the Global Competitiveness Index (GCI) and the "Higher education and training" pillar and its eight indicators. The third section of the results deals with examining the homogeneity of the Balkan countries according to the quality of higher education. The Balkan countries are grouped into two clusters according to the results achieved in this field. Finally, the last section is intended for systematization of those indicators that require improvement, in order that the increased quality of the higher education system contributes to the higher level of competitiveness of the analysed group of countries. In accordance with the defined purpose and objectives of the research, the authors start from the basic assumption that there is a high positive correlation between the quality of higher education and competitiveness of the Balkan countries.

2. MATERIALS AND METHODS

The information base of the research is "The Global Competitiveness Report 2017–2018" of the World Economic Forum (WEF). The report presents the results of the Global Competitiveness Index which tracks the performance of 137 countries on 12 pillars of competitiveness. Although there is some controversy concerning the reliability of international Global Competitiveness Indexes, due to data collection and reporting issues in some countries, the conjoint use of differing underlying methodological approaches, support the use of those indexes "as a set of reliable and useful performance indicators" (Fonseca and Lima, 2015). The main subject of the analysis is the fifth pillar of the GCI, "Higher education and training", which consists of eight indicators (WEF, 2017, p. 346): "Secondary education enrollment (I1), Tertiary education enrollment (I2), Quality of the education system (I3), Quality of math and science education (I4), Quality of management schools (I5), Internet access in schools (I6), Local availability of specialized training services (I7), Extent of staff training (I8)".

The research is carried out on a sample of nine Balkan countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Montenegro, Romania, Serbia and Slovenia). The research does not cover the European part of Turkey, as well as Macedonia, for which does not have available data in the latest WEF report.

The methods applied in the paper are comparative analysis, descriptive statistics, correlation analysis, cluster analysis and benchmarking analysis. The relative position of the analysed Balkan countries in terms of the GCI, "Higher education and training" pillar and mentioned indicators is examined by the comparative analysis. For the purposes of further research, the minimum, maximum and mean values of analysed indicators were determined by the descriptive statistics. In addition, the descriptive statistics also show the degree of variability of indicators in a selected group of countries. The correlation analysis examined the interdependence of the "Higher education and training" pillar and its indicators and the competitiveness of the Balkan countries measured by the GCI score. By the cluster analysis, Balkan countries are divided into two groups according to the achieved values of indicators, which enables identification of countries with the lowest level of performance. Finally, critical indicators that require improvement with the aim of achieving a higher level of education quality and competitiveness are highlighted by the benchmarking analysis, where the benchmark is the average value of indicators of the selected group of countries.

3. RESULTS AND DISCUSSIONS

The results of the research are grouped into four segments:

a) Cross-country comparison,

b) Examining the interdependence between education and competitiveness,

c) Examining the homogeneity of the Balkan countries, according to the quality of education, and

d) Systematization of critical indicators within "Higher education and training" pillar in the Balkan countries.

3.1. Cross-country comparison

In order to evaluate the relative position of the Balkan countries towards the achieved

level of competitiveness and the quality of higher education, Table 1 presents the values of the GCI, the "Higher education and training" pillar and indicators within this pillar in the Balkan countries, as well as the average values of the observed index, pillar and indicators for the Balkan countries and for total of 137 world countries whose results are measured by the WEF in its last report.

Table 1. Score of the GCI, "Higher education and training" pillar and indicators within the "Higher education and training" pillar (2017)

	GCI	5th pillar: Higher education and training	Secondary education enrollment, gross %	Tertiary education enrollment, gross %	Quality of the education system, 1-7 (best)	Quality of math and science education, 1-7 (best)	Quality of management schools, 1-7 (best)	Internet access in schools, 1-7 (best)	Availability of research and training services, 1-7 (best)	Extent of staff training, 1-7 (best)
Albania	4.18	4.77	95.77	58.11	4.29	4.30	4.09	5.27	4.01	3.83
Bosnia and Herzegovina	3.87	3.98	88.68	47.60	2.37	3.44	3.25	3.88	3.57	3.06
Bulgaria	4.46	4.62	99.02	73.93	3.39	3.82	3.44	4.45	3.73	3.34
Croatia	4.19	4.54	98.22	69.05	2.91	4.30	3.84	3.44	4.19	3.14
Greece	4.02	4.87	106.50	113.87	3.05	4.39	4.08	3.60	3.96	3.72
Montenegro	4.15	4.54	90.34	55.34	3.80	4.27	4.12	4.13	4.08	3.45
Romania	4.28	4.41	92.25	53.22	2.80	4.96	3.27	4.07	4.22	3.30
Serbia	4.14	4.55	96.67	58.29	3.27	4.82	4.01	3.88	4.11	3.42
Slovenia	4.48	5.37	110.67	82.93	4.04	5.38	4.39	5.38	4.66	4.15
Average of the Balkan countries	4.20	4.63	97.57	68.04	3.32	4.41	3.83	4.23	4.06	3.49
World average	4.30	4.32	86.92	43.38	3.77	4.05	4.30	4.26	4.45	4.04

Legend: Countries with the lowest value of index/pillar/indicator

Countries with the highest value of index/pillar/indicator

Source: World Economic Forum

The achieved level of competitiveness in the Balkan countries was considerably lower than the achieved level of competitiveness in the countries that were global leaders in 2017 (Switzerland and the United States, with a score of the GCI of 5.9) (WEF, 2017). Compared to the average value of the GCI for the Balkan countries, three countries (Bulgaria, Romania and Slovenia) recorded higher value of the GCI than the average of this group of countries. Only two countries, Bulgaria and Slovenia, recorded higher value of the GCI than the world average.

When the value of "Higher education and training" pillar was considered, and taking into account the fact that at the global level, Singapore recorded the best score of 6.3, while the best ranked country at the level of European countries was Finland (score of 6.2) in 2017, it can be concluded that all the Balkan countries, except Slovenia, recorded the results that are much lower than the best world and European practices in this field. Three countries, Albania, Greece and Slovenia, recorded higher value of this pillar compared to the average value for the group of Balkan countries. However, eight out of nine analyzed Balkan countries recorded higher value of pillar in relation to the world average. The lower value of "Higher education and training" pillar compared to the

world average was recorded only in Bosnia and Herzegovina.

When the achieved values of indicators within the "Higher education and training pillar" in the Balkan countries were compared, it was concluded that Bosnia and Herzegovina was a country that recorded minimum values of almost all indicators in 2017. Namely, Bosnia and Herzegovina was not the worst ranked only when it comes to "Internet access in schools" indicator. The minimum value of this indicators was recorded in Croatia. On the other hand, Slovenia was a leader in almost all observed parameters. In addition to being the best-ranked Balkan country in terms of global competitiveness, it recorded the highest values of almost all other observed indicators, except "Tertiary education enrollment" and "Quality of the education system". The highest value of "Tertiary education enrollment" indicator was achieved by Greece, while Albania recorded the highest value of "Quality of the education system" indicator.

It should be noted that the average values of the "Secondary education enrollment" indicator and the "Tertiary education enrollment" indicator in the Balkan countries were higher than the world average, and that all observed Balkan countries recorded higher value of these indicators in relation to the world average. The Balkan countries also recorded higher average value of the "Quality of math and science education" indicator compared to the world average. The average value of the remaining five analyzed indicators for the group of Balkan countries was lower than the world average. This fact points to the field of higher education in the Balkan countries that require improvement.

For the purpose of more complete analysis, Table 2 gives an overview of the descriptive statistics of the observed indicators. In general, the Balkan countries recorded a significantly higher average value of the "Secondary education enrollment" indicator, compared to the "Tertiary education enrollment". Also, the "Quality of math and science education" was at a higher level than the "Quality of management schools". The availability of research and training services is better assessed than the extent of staff training. The calculated value of the variation coefficient indicates that the Balkan countries recorded the highest variability according to "Tertiary education enrollment" indicator. On the other hand, the Balkan countries were fairly balanced when it comes to the values of "Secondary education enrollment" and "Availability of research and training services" indicators.

Table 2. Descriptive statistics (Balkan countries)

	N	Minimum	Maximum	Mean	Std. Deviation	Variation Coefficient (%)
Secondary education enrollment, gross %	9	88.68	110.67	97.56	7.22441	7.41
Tertiary education enrollment, gross %	9	47.60	113.87	68.03	20.46398	30.08
Quality of the education system, 1-7 (best)	9	2.37	4.29	3.32	0.62358	18.78
Quality of math and science education, 1-7 (best)	9	3.44	5.38	4.40	0.58574	13.31
Quality of management schools, 1-7 (best)	9	3.25	4.39	3.83	0.41267	10.77
Internet access in schools, 1-7 (best)	9	3.44	5.38	4.23	0.68502	16.19
Availability of research and training services, 1-7 (best)	9	3.57	4.66	4.05	0.30961	7.64
Extent of staff training, 1-7 (best)	9	3.06	4.15	3.49	0.34939	10.01
Valid N (listwise)	9					

Source: Authors' calculation

Compared to world practice (Annex 1), the Balkan countries recorded significantly better results of all observed indicators compared to the minimum values recorded in the world. However, the Balkan countries are far behind the best world practice (maximum values of indicators) in all segments of higher education, except for the "Tertiary education enrollment" indicator. Namely, the maximum value of this indicator on the world level was recorded in Greece. Expectedly, the variability of the values of all observed indicators measured by the coefficient of variation was

higher on a global level than in the group of Balkan countries.

3.2. Examining the interdependence between higher education and competitiveness

In order to examine the potential interdependence between the quality of higher education and the level of competitiveness of the Balkan countries, Table 3 gives an overview of Spearman's rank correlation coefficient between the values of the analysed indicators and the GCI. Table 3 also provides an overview of the correlation coefficients between the values of the analysed indicators and the "Higher education and training" pillar.

The following scale was used in interpreting the values of correlation coefficients: the values of correlation coefficients ≤ 0.35 represent low or weak correlation, the values of correlation coefficients from 0.36 to 0.67 represent moderate correlation and the values of correlation coefficients from 0.68 to 1 represent strong or high correlation where the values of correlation coefficients ≥ 0.9 indicate very high correlation (Weber and Lamb, 1970; Mason et al., 1983; Taylor, 1990).

Table 3. Values of the Spearman's rank correlation coefficient

		GCI	*Higher education and training*
GCI	Correlation Coefficient	1.000	0.335
	Sig. (2-tailed)	.	0.379
Higher education and training	Correlation Coefficient	0.335	1.000
	Sig. (2-tailed)	0.379	.
Secondary education enrollment	Correlation Coefficient	0.483	0.837(**)
	Sig. (2-tailed)	0.187	0.005
Tertiary education enrollment	Correlation Coefficient	0.317	0.845(**)
	Sig. (2-tailed)	0.406	0.004
Quality of the education system	Correlation Coefficient	0.400	0.720(*)
	Sig. (2-tailed)	0.286	0.029
Quality of math and science education	Correlation Coefficient	0.393	0.433
	Sig. (2-tailed)	0.295	0.245
Quality of management schools	Correlation Coefficient	0.217	0.720(*)
	Sig. (2-tailed)	0.576	0.029
Internet access in schools	Correlation Coefficient	0.586	0.429
	Sig. (2-tailed)	0.097	0.250
Availability of research and training services	Correlation Coefficient	0.583	0.151
	Sig. (2-tailed)	0.099	0.699
Extent of staff training	Correlation Coefficient	0.250	0.870(**)
	Sig. (2-tailed)	0.516	0.002

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

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

Source: Authors' calculation

Observing the relationship between the analysed indicators of the quality of higher education within the "Higher education and training" pillar and the GCI, it was concluded that there was a positive correlation. However, there was no high positive correlation between the values of any indicator and the GCI. The low positive correlation was recorded between the GCI and three indicators ("Tertiary education enrollment", "Quality of management schools" and "Extent of staff training"). The moderate positive correlation was recorded between the GCI and the remaining five indicators. The results obtained were not statistically significant.

In contrast, there was a high positive

statistically significant correlation between the "Higher education and training" pillar and its five indicators ("Secondary education enrollment", "Tertiary education enrollment", "Quality of the education system", "Quality of management schools", "Extent of staff training").

In order to conduct a more detailed analysis of the relationship between higher education and competitiveness of the analysed group of countries, but with the control of other factors that influence on competitiveness, the partial correlation between the value of the "Higher education and training" pillar and the GCI was calculated (Table 4). The WEF groups all factors that impact on competitiveness into 12 pillars. The values of the other 11 pillars in the analysed Balkan countries (in addition to the "Higher education and training" pillar) were taken for control variables (WEF, 2017).

Table 4. Partial correlation

Control Variables			GCI
Higher education and training pillar	Pillars within Basic requirements subindex	Correlation	0.154
		Significance (2-tailed)	0.805
	Pillars within Efficiency enhancers subindex	Correlation	0.598
		Significance (2-tailed)	0.102
	Pillars within Innovation and sophistication factors subindex	Correlation	-0.125
		Significance (2-tailed)	0.790

Source: Authors' calculation

Weak positive correlation, or correlation coefficient of 0.154 was obtained by calculating the partial correlation between the "Higher education and training" pillar and the GCI in the Balkan countries, with the control of the impact of the values of pillars within the "Basic requirements subindex". Correlation coefficient of 0.598, or moderate positive correlation was obtained when the values of pillars within the "Efficiency enhancers subindex" were used as control variables. It was concluded that the "Higher education and training" pillar and the GCI in the Balkan countries was negatively correlated, or the value of the correlation coefficient was -0.125, using the values of indicators within the "Innovation and sophistication factors subindex" as control variables. The results obtained were not statistically significant.

3.3. Examining the homogeneity of the Balkan countries according to the quality of education

The Balkan countries were grouped into two relatively homogeneous groups, according to the realized values of the indicators within the "Higher education and training" pillar by the cluster analysis. The k-means cluster analysis is used in the paper. K-means clustering algorithm performs minimization of the variation between clusters and thus implement segmentation variables. By using a non-hierarchical cluster analysis, certain units can be classified into groups that are linked according to certain observation variables. In this way, homogeneous groups that are heterogeneous to each other are obtained (Puška & Beganović, 2016). Table 5 shows the final cluster centres. It can be concluded that the countries belonging to cluster 2 had relatively weaker performance when it comes to the quality of higher education in relation to the countries belonging to cluster 1.

Table 5. Final Cluster Centers

	Cluster	
	1	2
Secondary education enrollment	108.59	94.42
Tertiary education enrollment	98.40	59.36
Quality of the education system	3.55	3.26
Quality of math and science education	4.89	4.27
Quality of management schools	4.24	3.72
Internet access in schools	4.49	4.16
Availability of research and training services	4.31	3.99
Extent of staff training	3.94	3.36

Source: Authors' calculation

Table 6 shows the cluster membership. Even seven out of nine analysed Balkan countries belonged to the cluster with weaker performance (cluster 2).

Table 6. Cluster Membership

Case Number	Cluster	Distance
Albania	2	2.457
Bosnia and Herzegovina	2	13.167
Bulgaria	2	15.290
Croatia	2	10.441
Greece	1	15.657
Montenegro	2	5.772
Romania	2	6.588
Serbia	2	2.586
Slovenia	1	15.657

Source: Authors' calculation

In addition to Greece and Slovenia, which were grouped in the first cluster, all other countries belonged to the cluster with lower performance in terms of the quality of higher education.

3.4. Systematization of critical indicators within "Higher education and training" pillar in the Balkan countries

In order to approach the improvement of the quality of higher education and create the conditions for education to become an important factor of the competitiveness of the Balkan countries, it is necessary to identify the areas that require improvement. The indicators of the first priority level were highlighted in Table 7 by the benchmarking analyses based on the values of indicators within the "Higher education and training" pillar for each Balkan country and the average values of indicator for the group of Balkan countries shown in Table 1. The average value of a particular indicator in the Balkan countries was used as benchmark. All indicators in a particular country whose value is less than the average of the group were indicated as indicators that require improvement. Namely, in addition to the fact that the overall quality level of higher education in the Balkan countries requires improvement, each country should first apply corrective measures and make improvements in indicators in which it deviates from the average of the comparable (Balkan) countries (Krstić and Stanišić, 2016, p. 102). These indicators were marked as indicators of the first level of priorities.

Table 7. Indicators within the "Higher education and training" pillar according to the priority of improvements in the observed countries

Country	Indicators - the benchmark is the average of the Balkan countries
Albania	I_1, I_2, I_4, I_7
Bosnia and Herzegovina	I_1, I_2, I_3, I_4, I_5, I_6, I_7, I_8
Bulgaria	I_4, I_5, I_7, I_8
Croatia	I_3, I_4, I_6, I_7
Greece	I_3, I_6, I_7, I_8
Montenegro	I_1, I_2, I_4, I_6, I_8
Romania	I_1, I_2, I_3, I_5, I_6, I_8
Serbia	I_1, I_2, I_3, I_6, I_8
Slovenia	/

Source: Authors' calculation

Observed by countries, Bosnia and Herzegovina is the country with the lowest quality of higher education. All analysed education quality indicators in this country are identified as indicators that require improvement. The second weakest positioned country is Romania, in which six of the eight areas that determine the quality of higher education require improvement. These countries were followed by Serbia and Montenegro, in which five critical indicators were identified. In Albania, Bulgaria, Croatia and Greece, four critical indicators were separated. Slovenia, as a leader in the region with regard to the quality of higher education, had no critical indicators. Slovenia recorded the value of all indicators higher than the average of the Balkan countries.

Observed by indicators, "Internet access in schools" (I6) and "Extent of staff training" (I8) were separated as critical indicators in six out of nine analysed countries. The generally viewed, the Balkan countries should give priority to these two areas in the policy of improving the quality of higher education.

4. CONCLUSIONS

Cross-country comparison highlighted Bosnia and Herzegovina as the country with the worst performances among the Balkan countries when it comes to both the quality of higher education and the level of competitiveness. On the other hand, Slovenia stood out as a leader in a selected group of countries. The calculated minimum, maximum and average values of the indicators within the "Higher education and training" pillar indicated that the Balkan countries lag behind the best world practice in terms of quality of higher education. By calculating the variation coefficient, it was noticed that the greatest variability and the unevenness of the achieved results among the Balkan countries existed when it comes to tertiary education enrollment.

Previous researches emphasized the existence of positive relationship between the quality of higher education and competitiveness, especially in developed countries (Şener and Sarıdoğan (2011); Pavlin and Svetlicic, 2012; Sekuloska, 2014; Keser, 2015; Aleksejeva (2016)). The results of the correlation analysis carried out in the paper indicated that there was no high positive correlation between the values of the GCI and the values of the analysed education quality indicators in the Balkan countries. In this way, the initial assumption of the research was rejected. It was not statistically confirmed that there is a relationship between the quality of education and the competitiveness of the Balkan countries, hinting that the expected positive benefits of quality of education might need more time to influence the competitiveness of these countries.

However, the Balkan countries achieved better results and values of the "Higher education and training" pillar compared to the GCI values. This suggested that, in addition to the fact that it is necessary to improve the quality of higher education in the Balkan countries, the special task is to use already achieved results in this field in order to improve the level of competitiveness. By the cluster analysis, the Balkan countries are grouped into two relatively homogeneous groups according to the indicators within the "Higher education and training" pillar. Even seven out of nine analysed countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, Romania and Serbia) belonged to the cluster with the weakest performance. Improving the quality of higher education in these countries would contribute to a better positioning of the Balkan countries as a whole in global terms. Critical indicators of the quality level of higher education by countries that should have a priority in the improvement policy were separated by the benchmarking analysis, where the benchmark was the average of the group. "Internet access in schools" and "Extent of staff training" were stood out as particularly critical indicators for the group of Balkan countries as a whole. These indicators require special and urgent attention of the creators and implementers of education policy and strategy, development policy and competitiveness policy in the Balkan countries. General recommendations for the improvement of these areas of higher education could be following: higher allocations from the state budget for improvement quality of education and equipment of educational institutions; strengthening awareness of the importance of information literacy, which means not only potentially greater working capacity in the future, but also protection of children from different types of abuse that are exposed on the Internet; raising awareness about the necessity of lifelong learning having in mind the fact that the scope of information and available global knowledge daily increases and requires continuous learning. Education system must be able to withstand the galloping growth of the volume of world knowledge, that is why employees in educational institutions must be participants in daily and lifelong learning.

ACKNOWLEDGEMENT

The paper is part of the research at the projects 179066 "Improving the competitiveness of the public and private sector by networking competences in the process of the European integration of Serbia", financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia.

Conflict of interests

The authors declare no conflict of interest.

REFERENCES

Aleksejeva, L. (2016). Country's competitiveness and sustainability: higher education impact. *Journal of Security and Sustainability Issues, 5(3)*, 355-363. http://dx.doi.org/10.9770/jssi.2016.5.3(4)

Balkyte, A., & Tvaronavičiene, M. (2010). Perception of competitiveness in the context of

sustainable development: facets of "sustainable competitiveness". *Journal of business economics and management, 11(2)*, 341-365. https://doi.org/10.3846/jbem.2010.17

Cremin, P., & Nakabugo, M. G. (2012). Education, development and poverty reduction: A literature critique. *International Journal of Educational Development, 32(4),* 499–506. https://doi.org/10.1016/j.ijedudev.2012.02.015

Cretan, G. C., & Gherghina, R. (2015). Funding higher education in a few EU countries: Implications for competition and competitiveness in higher education. *Journal of Knowledge Management, Economics and Information Technology, 5(1),* 1-22. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.685.3886&rep=rep1&type=pdf

Đurić, D., Mitrović, V., Đurić, D., & Ristić, J. (2018). Strengthening international competitiveness and investment growth as the basis for a new model of Serbian economy development. *Economics of Agriculture, 65(2)*, 731-744. https://doi.org/10.5937/ekoPolj1802731D

Fonseca, L., & Lima, V. (2015). Countries three Wise Men: Sustainability, Innovation, and Competitiveness. *Journal of Industrial Engineering and Management, 8(4),* 1288-1302. http://dx.doi.org/10.3926/jiem.1525

Fonseca, L. M., Portela, A. R., Duarte, B., Queirós, J., & Paiva, L. (2018). Mapping higher education for sustainable development in Portugal. *Management & Marketing. Challenges for the Knowledge Society. 13(3)*, 1064-1075. https://doi.org/10.2478/mmcks-2018-0023

Hebibi, L., Raimi, N., & Milićević, R. (2019). Knowledge management and the importance of knowledge management for the organization's performance. *Ekonomika, 65(1),* 117-126. https://doi.org/10.5937/ekonomika1901117H

Kabók, J., Kis, T., Csüllög, M., & Lendák, I. (2013). Data envelopment analysis of higher education competitiveness indices in Europe. *Acta Polytechnica Hungarica, 10(3)*, 185-201. Retrieved from https://www.uni-obuda.hu/journal/Kabok_Kis_Csullog_Lendak_41.pdf

Keser, H. Y. (2015). Effects of higher education on global competitiveness: reviews in relation with European countries and the middle east countries. *Annals of' Constantin Brancusi 'University of Targu-Jiu. Economy Series, 1(1),* 58-68. Retrieved from http://www.utgjiu.ro/revista/ec/pdf/2015-01.Volumul%201/08_Hilal%20Yildirir.pdf

Kovaleva, N. I., Valeyeva, N. S., Avilova, N. L., Kharisova, G. M., Khayrutdinov, R. R., Khairullin, E. R., & Shaikhlislamov, A. K. (2015). Recommended practices for improving the competitiveness of the Russian education services market under the conditions of the international educational integration. *Review of European Studies, 7(4),* 1-5. http://dx.doi.org/10.5539/res.v7n4p1

Krstić, B., & Stanišić, T. (2013). The influence of knowledge economy development on competitiveness of southeastern Europe countries. *Industrija, 41(2),* 151-167. doi:10.5937/industrija41-4000

Krstić, B., & Stanišić, T. (2016). Zdravstvo i osnovno obrazovanje kao determinantne konkurentnosti privrede Republike Srbije. [Health and primary education as determinants of competitiveness of the Serbian economy]. In B. Krstić (Ed.), *Faktori konkurentnosti Republike Srbije* [Factors of competitiveness of the Republic of Serbia] (pp. 87-106). University of Niš, Faculty of Economics.

Krstić, B., Petrović, J., & Stanišić, T. (2015). Influence of education system quality on the use of ICT in transition countries in the age of information society. *TEME, 39(3),* 747-763. Retrieved from http://teme2.junis.ni.ac.rs/index.php/TEME/article/view/75/43

Lane, J. E. (2012). Higher education and economic competitiveness. In Lane J. E. and Bruce J.D. (Eds.) **Universities and colleges as economic drivers: Measuring higher education's role in economic development** (pp. 1-30). Albany: State University of New York Press.

Lauder, H., Brown, P., Dillabough, J. A., & Halsey, A. H. (2006). *Education, globalization, and social change.* Oxford university press. Retrieved from https://researchportal.bath.ac.uk/en/publications/education-globalization-and-social-change

Mason, R. D., Lind, D. A., & Marchal, W. G. (1983). *Statistics: an introduction.* New York: Harcourt Brace Jovanovich.

Mayo, P. (2009). Competitiveness, diversification and the international higher education cash flow: the EU's higher education discourse amidst the challenges of globalisation. *International Studies in Sociology of Education, 19(2)*, 87-103. http://dx.doi.org/10.1080/09620210903257174

Miller, D. L. (2013). Universities and Colleges as Economic Drivers: Measuring Higher Education's Role in Economic Development (Book Review). *Planning for Higher Education, 41(4),* 135-137. Retrieved from https://search.proquest.com/openview/056fb835c0bf2566681bde9a9bc92949/1?pq-origsite=gscholar&cbl=47536

Pavlin, S., & Svetlicic, M. (2012). Higher education, employability and competitiveness. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 43(43),* 386-397. https://eric.ed.gov/?id=EJ979698

Persaud, A. (2017). Integrated planning for education and development. *European Journal of Education, 52(4),* 448–459. https://doi.org/10.1111/ejed.12233

Petrović, P., & Živković, D. (2017). Continuing education of hotel employees and their shared vision of the organization. *Menadžment u hotelijerstvu i turizmu – Hotel and Tourism Management, 5(1),* 85-93. Retrieved from http://www.htmanagementvb.com/index.php/HITM/article/view/29

Puška, A., & Beganović, A. I. (2016). Primjena klaster analize u ekonomskim istraživanjima [The Implementation of Cluster Analysis in Economic Research]. *Oeconomica Jadertina, 6(1),* 3-19. Retrieved from https://hrcak.srce.hr/168460

Radovanović, V., & Rendulić, V. (2017). With knowledge and innovation in new tourism venture. *Menadžment u hotelijerstvu i turizmu – Hotel and Tourism Management, 5(2),* 96-105. Retrieved from http://www.htmanagementvb.com/index.php/HITM/article/view/12

Schofer, E., & Meyer, J. W. (2005). The worldwide expansion of higher education in the twentieth century. *American Sociological Review, 70(6),* 898-920, https://doi.

org/10.1177/000312240507000602
Sekuloska, J. D. (2014). Higher education and training as crucial pillars in creating the competitiveness of nation. *Procedia-Social and Behavioral Sciences, 156(26)*, 241-246. https://doi.org/10.1016/j.sbspro.2014.11.182
Şener, S., & Sarıdoğan, E. (2011). The effects of science-technology-innovation on competitiveness and economic growth. *Procedia-Social and Behavioral Sciences, 24*, 815-828. https://doi.org/10.1016/j.sbspro.2011.09.127
Stanišić, T., & Leković, M. (2018). ICT readiness as a factor of tourism competitiveness. In D. Cvijanović et al. (Eds.), *Tourism in Function of Development of the Republic of Serbia - Tourism in the Era of Digital Transformation* (pp. 390-406). University of Kragujevac, Faculty of Hotel Management and Tourism in Vrnjačka Banja. Retrieved from http://www.tisc.rs/proceedings/index.php/hitmc/article/view/23
Stonkiene, M., Matkeviciene, R., & Vaiginiene, E. (2016). Evaluation of the national higher education system's competitiveness: Theoretical model. *Competitiveness Review, 26(2)*, 116-131. https://doi.org/10.1108/CR-06-2015-0055
Stošić, L. (2015). The importance of educational technology in teaching. *International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE), 3(1),* 111-114. http://www.ijcrsee.com/index.php/ijcrsee/article/view/122
Sum, N.-L., & Jessop, B. (2013). Competitiveness, the knowledge-based economy and higher education. *Journal of the Knowledge Economy, 4(1),* 24-44. https://doi.org/10.1007/s13132-012-0121-8
Taylor, R. (1990). Interpretation of the Correlation Coefficient: A Basic Review. *Journal of Diagnostic Medical Sonography, 6(1)*, 35–39. https://doi.org/10.1177/875647939000600106
Van der Wende, M. C. (2000). The Bologna Declaration: Enhancing the transparency and competitiveness of European higher education. *Journal of Studies in International Education, 4(2)*, 3-10. https://doi.org/10.1177/102831530000400202
Weber, J. C., & Lamb, D. R. (1970). *Statistics and Research in Physical Education.* St. Louis: CV Mosby Co.
WEF. (2017). *The Global Competitiveness Report 2017–2018*. World Economic Forum, Geneva.

ANNEX 1

Descriptive statistics (World countries)

	N	Minimum	Maximum	Mean	Std. Deviation	Variation Coefficient (%)
Secondary education enrollment, gross %	134*	22.40	166.81	86.92	28.34933	32.61
Tertiary education enrollment, gross %	134**	0.80	113.87	43.38	28.07921	64.72
Quality of the education system, 1-7 (best)	137	1.85	6.19	3.77	0.92085	24.42
Quality of math and science education, 1-7 (best)	137	2.27	6.46	4.05	0.93487	23.06
Quality of management schools, 1-7 (best)	137	2.58	6.39	4.30	0.83404	19.41
Internet access in schools, 1-7 (best)	137	1.59	6.18	4.26	1.01875	23.89
Availability of research and training services, 1-7 (best)	137	2.39	6.68	4.45	0.82178	18.46
Extent of staff training, 1-7 (best)	137	2.29	5.75	4.04	0.70382	17.42

Legend: * There is no data on the "*Secondary education enrollment*" indicator in the Global Competitiveness Report 2017-2018 for 3 out of the 137 analyzed world countries (Haiti, Trinidad and Tobago and United Arab Emirates).

** There is no data on the "*Tertiary education enrollment*" indicator in the Global Competitiveness Report 2017-2018 for 3 out of the 137 analyzed world countries (Haiti, Nicaragua and Sierra Leone).

Source: Authors' calculation

Rahbarianyazd, R., & Nia, H. Ahmad (2019). Aesthetic cognition in architectural education: a methodological approach to develop learning process in design studios, *International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE), 7(3)*, 61-69

AESTHETIC COGNITION IN ARCHITECTURAL EDUCATION: A METHODOLOGICAL APPROACH TO DEVELOP LEARNING PROCESS IN DESIGN STUDIOS

Dr. Rokhsaneh Rahbarianyazd, Faculty of Architecture, Department of Architecture, Alanya HEP University, Turkey, E-mail: rokhsaneh.rahbarianyazd@gmail.com
Dr. Hourakhsh Ahmad Nia, Faculty of Architecture, Department of Architecture, Alanya HEP University, Turkey, E-mail: hourakhsh_ahmadnia@yahoo.com

ARTICLE INFO

Original Research
Received: August, 18.2019.
Revised: September, 15.2019.
Accepted: October, 16.2019.
doi: 10.5937/IJCRSEE1903061R

UDK
378.6:72(560)
378.147::111.852(560)

Keywords:
Aesthetic Cognition;
Architectural Education;
Design studio;
Learning Process.

ABSTRACT

Aesthetics and the design studio have been widely regarded as germane to architecture education and architectural design education respectively. Despite this obvious importance and relationship, very scant studies have been done on how aesthetics as a concept, has been thought in architectural schools especially with regard to the pedagogue of acquiring aesthetic knowledge as perceived by instructors and students in the Design Studio. Moreover, despite its centrality in architectural studies, there is a current gap in literature pertaining to aesthetics and the steps to teaching it in architectural design studios. This paper presents a discussion on the aesthetics and the process of teaching it in design studio using a qualitative grounded theory approach. In view of the paucity of work on the teaching pedagogue in architectural design studios, this study aim at shedding light on how students and studio instructors perceive the extant state of the methods of teaching aesthetics and identify the aesthetics of architecture. In this regard, the study by hypothesizing the design studios as the core contributor in architectural design developed the contributing elements in aesthetic education of architecture.

1. INTRODUCTION

The design studio is central to design curriculum (Demirbaş and Demirkan, 2003). Indeed, Schön (1985) puts it that it is the fulcrum of architectural education. Design studio based techniques are generally accepted (Vyas et al., 2013). Significant in these techniques are the relationships (social and interpersonal) that develop amongst the students and between the student and tutor. This sort of teamwork (Vyas et al., 2013) is important to the decisions made in the design studio. Yang (2010) pointed out that much work has been done in this regard. Thus, on this note, Demirkan and Afacan (2012) pointed out that it is imperative for students of architecture to create their own set of design thinking (Dorst 2011) and creative techniques which in the long run will increasingly benefit the general populace (Stošić and Stošić, 2014). Design students' ability to internalize design concepts and grow their own ideas into problem solving skills is germane in the structure of contemporary societies so as to cope with its complex range of design problems.

Studies have viewed design as a high-level cognitive ability and underscored the link between the cognitive process and the concept of aesthetics in design (Oxman, 1996, Nguyen and Zeng, 2012). This link is considered very important especially in the light of the fact that design thinking is germane to the design process (Dorst, 2011) and the design studio (Oxman, 2004). Furthermore, it is instructive to note that cognitive studies on the design process involving aesthetics have been performed using empirical and experimental methods (Alexiou et al., 2009).

The term "Aesthetics" is used pertaining to beauty in architecture or art (Nia and Suleiman, 2018). Notwithstanding this, Gür

Corresponding Author
Dr. Rokhsaneh Rahbarianyazd, Faculty of Architecture, Department of Architecture, Alanya HEP University, Turkey,
E-mail: rokhsaneh.rahbarianyazd@gmail.com

(2007) observed that the aesthetic meaning is open to debate and depends on the spirit of the era. Much of the scholastic nature of aesthetics, the way it is thought and assimilated in the design studio, however still remain abstruse despite its importance to architecture. Describing its importance, Vitruvius (15 BC/1914) defined good architecture in terms of the three aspects of aesthetics which are: Venustas (beauty), Firmitas (firmness), and Utilitas (utility). Indeed, there is a knowledge gap in the way aesthetic education is experienced and understood and few theories have addressed this. This paper adopts a qualitative grounded theory approach to analyze aesthetic education and the process of attaining it in design studios using a systemic set of procedures which so called systematic review. Clearly stated, the purpose of this article is to unravel the aesthetic pedagogue in architectural design studio through a study on teaching methods in the studios. In doing so, design studio has been stated as the core of architectural education. Accordingly, contributing elements in architectural education have been discussed to develop a comprehensive model based on the design process aiming to modify Bloom Taxonomy in Architecture Design Studios.

2. MATERIALS AND METHODS

2.1. Architectural Education

Architecture is an inductive design activity that involves comprehensive processes requiring an analysis phase, programming and designing stage. When these stages are properly aligned, the product is economically feasible and aesthetically pleasing. According to UNESCO/UIA Charter for Architectural education, the point "An ability to create architectural designs that satisfy both aesthetic and technical requirements" is included in the objectives of education. Amongst others, the UNESCO/UIA (2004) Charter specifies that the following is germane to architectural education:

- The consciousness of the relationship between architecture and other creative vocations.
- The mastery of the fine arts as a tool for conveying architectural thoughts thereby enhancing design quality.

Architecture affects the urban aesthetics inasmuch as the buildings which make up the cities are created by architects. Indeed, the Architectural students are the "decision-makers" as far as the aesthetic quality of the environment is concerned (Nia et all., 2017). Thus, in view of the concerns on aesthetics in design studies, the need for a broad based curriculum that embraces the concepts of aesthetic education becomes inevitable. Part of the reasons for this should be to awaken the students to aesthetic problem and curiosity. In this way, their perception of the aesthetic problem will become profound to the end that their ability to apprehend the challenges of the built environment in the design studios is enhanced.

2.1.1. Design studio as the Core of Architectural Education

Schön's proposition that "learning is by doing" suggest that the design studio is de facto, the core of architectural education (Schön, 1983; Oh et al., 2013) and a prerequisite for the design curriculum. Although contemporary approach to studio teaching still predicates on the traditional models, progress in a new form of research that targeted reformulating the architectural practice and education in the design studio has supplanted this. As a result, Demirbaş and Demirkan (2007) pointed out that the design studio is fundamental to the design curriculum, arguing that other aspects of the curriculum should be relevant to the design studio.

Furthermore, Rüedi (1996) opined that design is a bridge between realization (social activity) and invention (mental activity). Taking Rüedi views to mean that design is the mediator between both activities, it could also be abstracted that design is an inductive, flexible and undetermined problem-solving process where designers' cognitive abilities are employed. This implies that the design studio facilitate the free exchange of ideas that is both interactional (social) and organizational (students and tutor relationship) in structure. Moreover, the design studio is the first educational environment where first-hand experiences regarding the praxis of the profession can be obtained. Overall, the methods adopted for design education, i.e. teaching and learning helps to balance creativity and critical thinking. The critical process is also facilitated in the design studio. This could owe to student interaction which encourages dialogue and healthy criticism of their designs (Kvan and Jia, 2005).

2.1.2. Contributing Elements in Architectural Education

The educational methods have been seen as a way of organizing the learner's cognitive activity to ensure the acquisition of knowledge and skills of the student in the process of instruction (UNESCO, 1966). It is worthwhile to realize that appropriate method to teach advanced education is flexible and depends on the purpose to be achieved. A variety of teaching techniques such as: seminars, presentations, group discussion, brainstorming and conferences amongst others could be appropriate (Stošić and Stošić, 2013). Each of these has its peculiarity and may be combined to enhance effectiveness. Often times, the combinational effects of visual and auditory method enliven the cognitive and pedagogical process and architectural education. It also enhances students' ability to acquire a richer understanding of the subject by provoking their aesthetic curiosity. From the foregoing, it follows that "Aesthetics" is better understood with interactive education. Open discussion has proved to be most significant as the students participated in this teaching method at all stages of the program (See Figure 1). This provides a platform for intellectual dialogue and brainstorming aside from the nominal lecture periods. Invariably, the platform promotes creativity amongst students.

A further technique employs the use of brainstorming as an intellectual tool to facilitate the development of new aesthetic ideas from listening skills. It has also been used for decision-making, problem-solving as well as creative thinking. Team building is also enhanced by brainstorming (Sajjad, 2011). Apart from this, even the use of music as an instrument for stirring up the senses and understanding the "aesthetic feelings" has been explored. Other methods that have proved effective in awakening the aesthetic curiosity in design studios includes: watching science fiction, reading/listening to famous poets and studying sections from the classics.

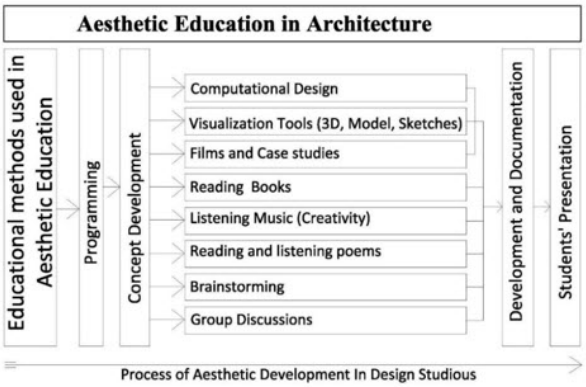


Figure 1. Educational methods used in design studios regarding aesthetics courses.

Eight specific paths to acquiring the aesthetics knowledge in architectural design by means of qualitative data coding have been identified. These are:

c. Design community environment
a. The epochal environment
d. School environment
g. Students' understanding of aesthetics and knowledge of design
h. Reviewers' comments
b. Societal environment
f. Instructors' aesthetic value and aesthetic preference
e. Instructors past educations and experiences

Student's ability to perceive aesthetics under the aesthetic education training scheme will depend on a number of factors which include the tutor's aesthetic preference, experiences, values, judgments and the student's aptitude. This is illustrated in figure 2. Thereafter, the studio influence, the school environment, vision and philosophy are all equally important in providing aesthetic education. Beyond this, the culture of the design community which is impacted by the professional society is very influential. By far, the greatest influence comes from the societal community which of course, epitomizes the norm of the society in its entirety. Thus, Figure 2 illustrates the steps involved in providing aesthetic education in the design studios.

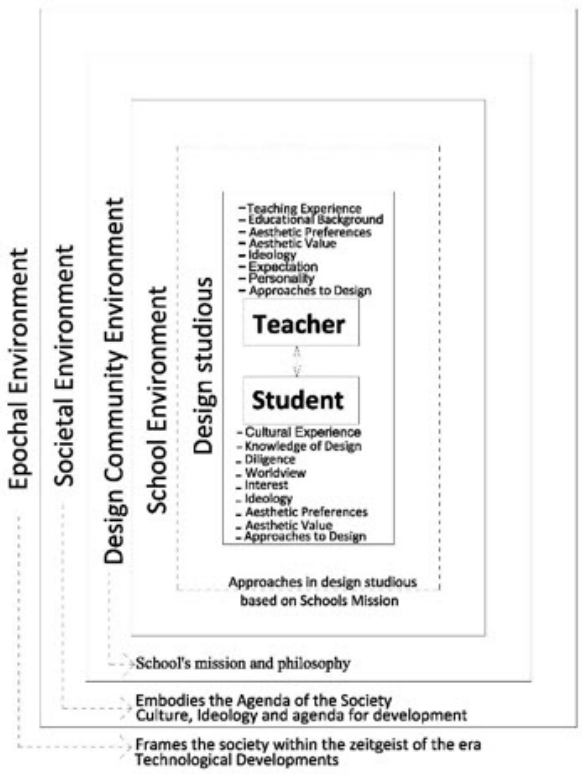


Figure 2. A theoretical model in the process of aesthetic education.

3. RESULTS

The *design community environment*, according to Figure 2, is responsible for the culture of aesthetics as it relates to the profession (this environment infers the make-up of designers and architects). Moreover, the environment may also include the paraphernalia of a board of accreditors who draw up student's educational curriculum and determine the yardstick of their performance, professional organizations that honor outstanding architectural achievements with awards and architectural magazines that promote seminal works.

An objective description of the architectural design process itself may be impossible owing to the subjective approach to design itself; as designers' approaches design differently. Some students for example may be quick to decide on a design direction thereby giving them more room for idea development, while others may be slow at arriving at a direction; making several attempts to test their ideas till they find it convincing.

Other authors have also explored the scholastic attribute of aesthetic education in the design studio. Premised on the character and quality of tutor-student relationship and the type of knowledge transacted, Moore (2001) identified four teaching models: the scientist, the practitioner, the cleric, and the social activist (See Table below).

Type of knowledge transacted in student-teacher interaction		**Character of student-teacher interaction**	
		Formal	***Facilitator***
Expert		**The Scientist**	**The Practitioner**
	Epistemological assumption	Knowledge is external	Knowledge is dynamic, negotiable
	Teaching style	Expert and formal authority	Instructor and students as co-investigators
	Teaching method	Lecture, teacher-centered discussion	Case studies, problem-based learning
Personal		**The Cleric**	**The Social Activist**
	Epistemological assumption	Knowledge cannot be transferred but is transcendental	Knowledge is dynamic, negotiable
	Teaching style	Mystical master	Instructor and students as co-investigators
	Teaching method	Self-discovery activities, coaching, role model	Small-group team work, debate

Table 1. Pedagogical metaphors and teaching styles (Cho, 2011).

The two models suggested by Moore —*Expert or Personal* were premised on the knowledge type that exist between the teacher and student. For instance, the abstract quality of aesthetics is immediately visible once it is accepted as a form of knowledge. In this sense, aesthetics is subjective, informal and a reflection of one's personality and values and the aesthetic knowledge passed down to the students from the instructor comes as a result of the instructor's experiences. When viewed from the pedagogical metaphors outlined by

Moore, the instructors examined in this study appear to differ in style even though their knowledge –type is personal and expertise. They derive their expertise in certain aspects of knowledge such as structure of materials while they share their personal values with respect to aesthetic aspects of buildings. Moreover, we also highlight that the knowledge type delivered by the instructor in the design studio can be analyzed as two different theoretical components which are: normative theory and positive theory. Normative theory is a statement indicating to what extent a thing is acceptable or unacceptable. Positive theory is value-free and the antithesis of the normative theory. Lang (1987) observed that the normative theory addresses the yardstick for the assessment of what is acceptable in the environment as perceived by different designers. In this case, the norms are valued and prioritized. It is worthwhile to note that the nature of normative theory and the aesthetics discuss are mutually inclusive.

Attoe and Mugerauer's (1991) proposed 14 general attributes and examined 20 seminal teachers using in-depth interview method. These characteristics are classified by three main considerations: (1) course format and implementation, (2) personal style, and (3) teacher as self. The findings show that the main information obtained from interview with the studio teachers is more useful in determining their characteristics than from other random sources such as observations or student interviews.

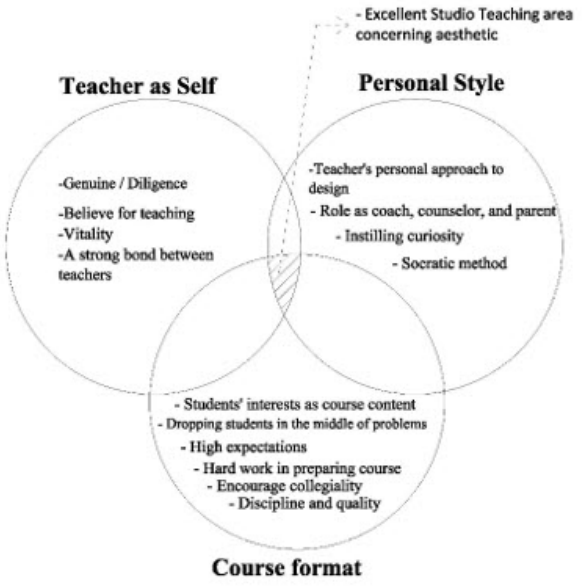


Figure 3. Fourteen Traits of Excellent Studio Teaching.

Thus, by referring to Attoe and Mugerauer's on excellent studio teaching, the link between tutor's emphasis on aesthetics and the adherence of students to their projects can be shown in the diagram below.

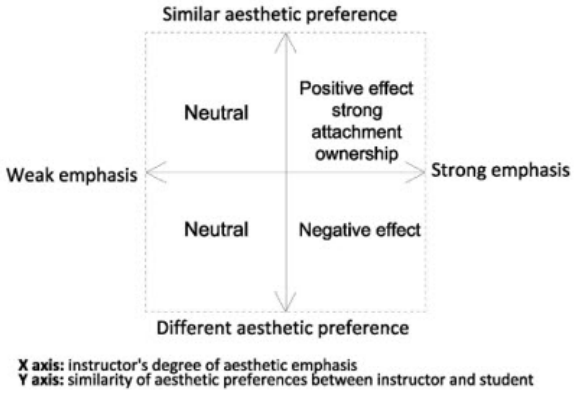


Figure 4. Student's affection to his/her project in design studios, consequences from interaction among an instructor's and student's aesthetic preferences and emphasis (Cho, 2011).

Moreover, Figure 4 shows to what extent the instructor emphasizes his aesthetic on the x-axis and the similarity or difference in the aesthetic preference of the student and instructor on the y-axis. It was found that students do not feel the sense of originality in their work when coerced to their instructor's preferred aesthetics. Even when the design is appraised successful, the students still feel that the work is not their own and show a general lack of enthusiasm.

4. DISCUSSIONS

4.1. Professor and Student Method of Architectural Education

This method involves reading out. It modifies the old method by introducing cognitive psychology. It has therefore become a relevant subject in textbooks on educational psychology. There are six aspects involved in the professor and student method:

a)- Case studies:

Here a professor shows the student how to carry out each task; with each task performed with its own uniqueness.

b) - Critiques:

In this case, the professor supervises student's work by advising appropriately using gestures, feedbacks and guides.

c) - Support (care):

A professor provides students with initial support according to a specified framework. Thereafter, the students are allowed to work independently to demonstrate the skills acquired during the initial stage. The first

three stages enrich students' ability to earn recognition and Meta-recognition skills via a systemic process enhanced by experiences and observation.

d) - Scrutiny (self -analyzing): Student manifests unique intellectual characteristics and prowess without recourse to the professor. Thus, in his interaction, the professor provides the student with freedom of self-expression where and when safe.

e)-Expression: In this case, the method is more or less a test. The test allows the student to be examined by the professor and this demand that the student should explain the processes required in carrying out his work.

f)- Revision: Students are encouraged to do a comparative analysis of their work against the backdrop of the professor's work. Here, critical thinking and revision of the student's methods will be involved.

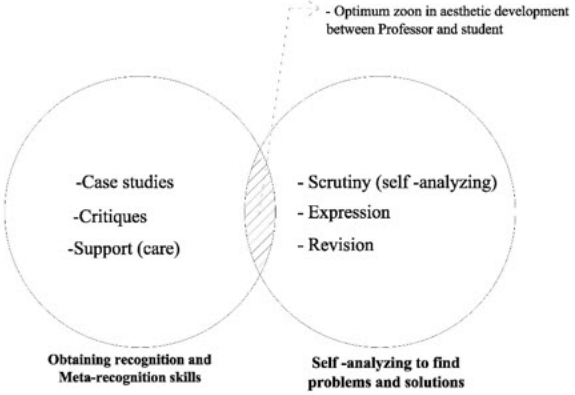


Figure 5. Professor and Student Method in aesthetic development of architectural design studios.

4.2. Peer Learning Teaching Method of Architectural Education

Although the Peer-learning teaching method is in its nascent stage, it is both learning and teaching method that takes the form of a lecture/ conference and classmate to classmate teaching. It is therefore a mutual learning process where students play the role of an instructor. Hence, it creates special task for the students – students' as managers and teachers in their own domains. Consequently, by this method the students' level of cognition will be paramount to the learning process. The method is sensitive and valuable to the university education program.

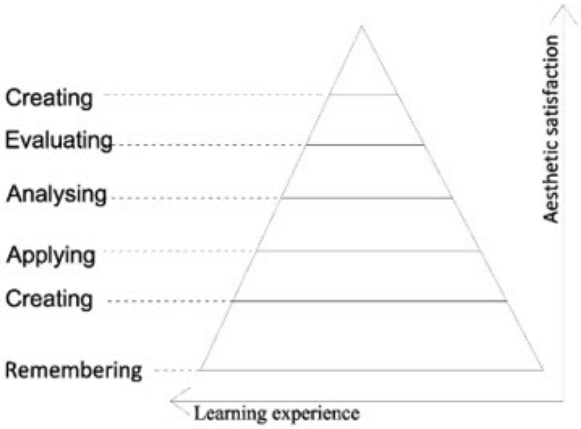


Figure 6. Peer Learning Teaching Method.

Donna Duerk (1993) pointed out that this educational models enhance the design process by stimulating interaction between "Synthesis and Evaluation" in design studios. Recalling that design itself is a systemic process constituted by three basic modules, the impact of each of these designers' concepts and goals are most fundamental to good designs rather than objective analysis.

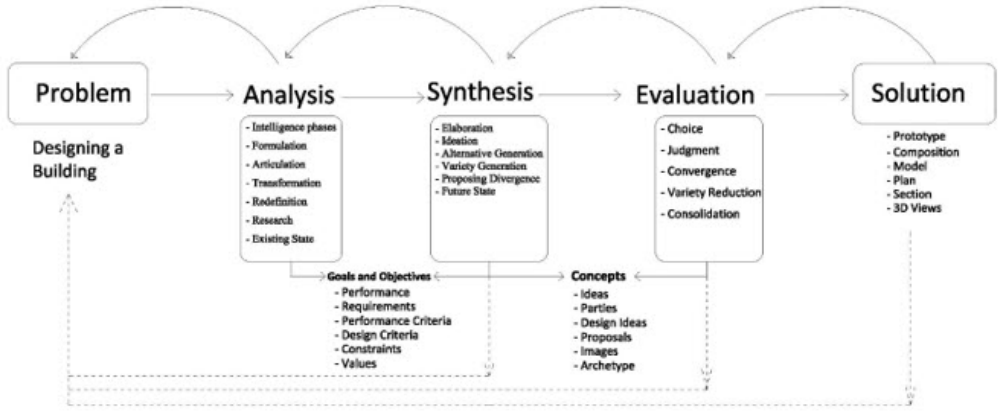


Figure 7. The Design Process: Analysis, Synthesis, and Evaluation.

Aside to the aforementioned models the Bloom Taxonomy is also examined. It is utilized based on the findings of this research as a checklist for making sure that the Design Studio fulfills its objective of providing design education. Figure 8 illustrates the Bloom Taxonomy and alongside, expectations of quality levels to be achieved at different stages of the Design Studio. When correctly applied to a design project, the checklist can ensure designers capability for original state of the aesthetic design solutions.

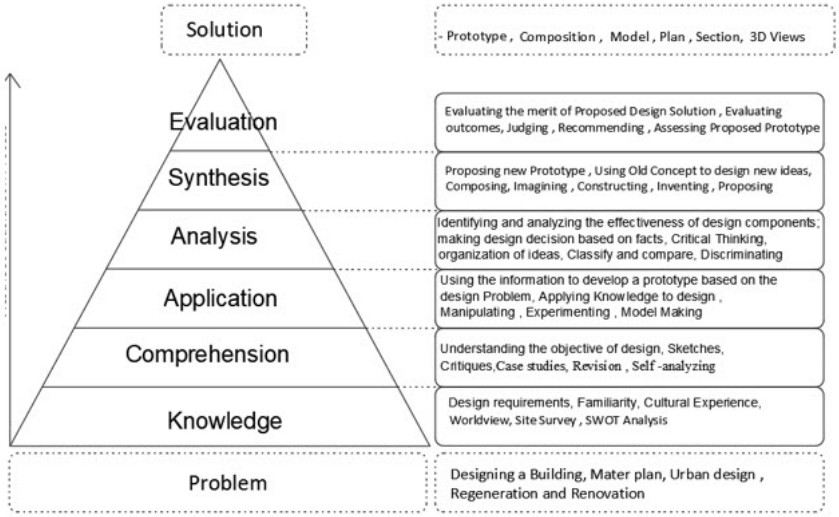


Figure 8. Modified Bloom Taxonomy in Architecture Design Studio

5. CONCLUSIONS

Design educators should realize that the purview of architectural education stretches beyond explicit knowledge to discerning beauty in its diversity and in other perspectives. In this way, students of the design studio will better appreciate the plurality of aesthetic beauty.

It is also revealed in this study that educators should be aware that the design studio is an arena for intellectual dialogue, critical thinking and criticism; hence, the possibility of clashes between instructors and students with regard to the aesthetics discuss. The study also stressed that students do not feel the sense of belonging regarding their work when the instructors overstress their aesthetic preferences and force these on the students, in particular, those in advanced-level classes. The study posits that when instructors compel the students to adopt their aesthetic inclinations the results is counter-productive and a teacher -prescriptive approach emerges. Instead, instructors should be suggestive and should and give room for students' aesthetic maturity to evolve naturally.

Furthermore, the study implies that architecture is art inasmuch as it is simply by viewing architecture in this way that it becomes possible to conjoin the principles of aesthetics with architecture. In fact, the collective influence of aesthetics decisions on buildings are germane to the society and to the mental psychologically of individuals that make-up the society. In the overall, this study posits that the concept of Gestalt grouping, symbolic and formal aesthetic should be reinforced in design studio classes to strengthen the idea behind the aesthetics in cities through buildings (Nia and Suleiman, 2018).

Finally, the study also showed that the curriculum structure for the design studio should be all-encompassing so as to guarantee an ideal aesthetic learning process for architecture students. The subject details in the curriculum should be thoughtfully selected to ensure a propitious academic studio environment. Since it is consistent with the aim of the Architecture Design Studio to produce matured students who are creative and show mastery in pragmatic and critical thinking, the application of the Bloom Taxonomy and the stages of students' knowledge attributes as earlier discussed can be utilized as a checklist towards developing aesthetic understanding of students in design studios. The study to assess interrelation of aesthetic Learning Process in Design Studios from fist year to the graduation level has been suggested in this paper for future study.

ACKNOWLEDGEMENTS

The authors express their gratitude to Alanya Hamdullah Emin Paşa University and the reviews of the International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE) for making this research possible.

Conflicts of interests

The Authors declares no conflict of interest.

REFERENCES

Alexiou, K., Zamenopoulos. T., Johnson J. H. and Gilbert S. J. (2009). Exploring the neurological basis of design cognition using brain imaging: some preliminary results. *Journal of Design Studies. 30(6),* pp. 623-647. https://doi.org/10.1016/j.destud.2009.05.002

Attoe, W. and Mugerauer, R. (1991). Excellent Studio Teaching In Architecture. *Studies In Higher Education, 16(1),* 41-50. https://doi.org/10.1080/03075079112331383081

Cho, J. Y. (2011). The Process of Aesthetic Education In Design Studio: A Layperson's Acculturation to the Architecture and Design Community. *Journal of Architectural and Planning Research. 30(4)*, 328-343. Retrieved from: https://www.jstor.org/stable/43031017?seq=1#metadata_info_tab_contents

Demirbaş, O. O., Demirkan, H. (2007). Learning styles of design students and the relationship of academic performance and gender in design education. *Learning and Instruction. 17(3)*, 345–359. https://doi.org/10.1016/j.learninstruc.2007.02.007

Demirbaş, O. O., Demirkan, H. (2003). Focus on architectural design process through learning styles. *Design Studies. 24(5)*, 437–456. https://doi.org/10.1016/S0142-694X(03)00013-9

Demirkan, H., Afacan,Y. (2012). Assessing creativity in design education: analysis of creativity factors in the first-year design studio. *Design Studies. 33(3),* 262–278. https://doi.org/10.1016/j.destud.2011.11.005

Donna Duerk, P. (1993). *Architectural Programming: Information Management for Design.* New York: Van Nostrand Reinhold. Retrieved from: https://www.abebooks.com/Architectural-Programming-Information-Management-Design-Duerk/13309222296/bd%20

Dorst, K. (2011). The Core of 'Design Thinking' and Its Application. *Design Studies. 32(6)*, 521–532. https://doi.org/10.1016/j.destud.2011.07.006

Gür, S. (2007). Modernity Vs. Postmodernityin Architectural Education. *Journal of Architectural and Planning Research, 24(2)*, 91-108. Retrieved from: http://www.jstor.org/stable/43030794

Habibi, A. (2008). *Learning through teaching others, Assessment of Education System (peer-to-peer), the articles of the third architecture training conference, University of Tehran, Art Campus,* author: Seyed Amir Saeid Mahmoudi. https://docplayer.net/27104760-Teaching-methods-in-architectural-design-basics.html

Kvan, T., Jia, Y. (2005). Students' learning styles and the correlation with performance in architectural design studio. *Design Studies. 26(1)*, 19–34. https://doi.org/10.1016/j.destud.2004.06.004

Lang, J. (1987). *Creating architectural theory.* New York: Van Nostrand Reinhold. https://scholarscompass.vcu.edu/cgi/viewcontent.cgi?article=1154&context=jstae

Moore, K. (2001). The scientist, the social activist, the practitioner and the cleric: Pedagogical exploration towards a pedagogy of practice. *Journal of Architectural and Planning Research, 18(1),* 59-79. Retrieved from: https://www.jstor.org/stable/43030559?seq=1#metadata_info_tab_contents

Nadimi, H. (2010). Teacher-Student Method, Aother Perspective, *Journal of Honar-Ha-Ye-Ziba Memary Va Shahrsazi (visual arts, architecture, and urban development), 44(1),* 379-387. https://doi.org/10.5902/2179460x20868

Nguyen, T.A., Y. Zeng. (2012). *Clustering designers' mental activities based on EEG power. Tools and Methods of Competitive Engineering*, Karlsruhe. Edited by I. Horváth, A. Albers, M. Behrendt and Z. Rusák. Proceedings of TMCE 2012, May 7–11, 2012, Karlsruhe, Germany. https://scholar.google.com/scholar?q=Nguyen,%20T.A.,%20Y.%20Zeng,%202012.%20Clustering%20designers%20mental%20activities%20based%20on%20EEG%20power.%20Tools%20and%20Methods%20of%20Competitive%20Engineering,%20Karlsruhe.

Nia, H. A., & Suleiman, Y. (2018). Aesthetics of Space Organization: Lessons from Traditional European Cities. *Journal of Contemporary Urban Affairs, 2(1)*, 66-75. https://doi.org/10.25034/ijcua.2018.3659

Nia, H. A., Alpar, R. & Rahbaryanyazd, R. (2017). Perception Based Method For Measuring The Aesthetic Quality Of The Urban Environment. *Open House international. 42(2)*. Retrieved From: https://www.researchgate.net/profile/Hourakhsh_Ahmad_Nia/publication/312191981_Perception_Based_Method_for_Measuring_the_Aesthetic_Quality_of_the_Urban_Environment_The_Case_of_Famagusta/links/5ca865244585157bd325469f/Perception-Based-Method-for-Measuring-the-Aesthetic-Quality-of-the-Urban-Environment-The-Case-of-Famagusta.pdf

Nia, H., & Suleiman, Y. (2017). Identity in Changing Context: Factors of losing Identity in new developed part of the city of Famagusta, North Cyprus. *Journal of Contemporary Urban Affairs, 1(2)*, 11-20. https://doi.org/10.25034/ijcua.2018.3661

Oh, Y., Ishizaki, S., Gross, M.D. & Do, E. Y. L. (2013). A theoretical framework of design critiquing in architecture studios. *Design Studies. 34(3)*, 302–325. https://doi.org/10.1016/j.destud.2012.08.004

Oxman, R. (1996). Cognition and design. *Journal of Design Studies. 17(4)*, Pp 337-340. https://doi.org/10.1016/S0142-694X(96)90000-9

Oxman, R. (2004). Think-maps: teaching design thinking in design education. J*ournal of Design Studies. 25(1),* pp 63-91. https://doi.org/10.1016/S0142-694X(03)00033-4

Rüedi, K. (1996). *Architectural Education and the Cul-*

ture of Simulation: history against the Grain. In:Hardy, A.,Teymur, N. (Eds.), Architectural Education and the Culture of Simulation: history against the Grain, pp. 109–125. Retrieved from: http://refhub.elsevier.com/S2095-2635(15)00039-4/sbref53

Sajjad, S. (2011). Effective Teaching Methods At Higher Education. *Proceedings of The first international conference of the WFATE*. Retrieved from: http://class.web.nthu.edu.tw/ezfiles/669/1669/img/1381/1.Effectiveteachingmethodsathighereducationlevel.pdf

Schön, D. A. (1983). *The Reflective Practitioner: How Professionals Think in Action*, Basic Books: United States. Retrieved from: https://www.sopper.dk/speciale/arkiv/book49.pdf

Schön, D. A. (1985). *The design studio: An exploration of its traditions and potentials*. London: RIBA Publications for RIBA Building Industry Trust. Retrieved from: https://trove.nla.gov.au/version/45633888

Stošić, L., & Stošić, I. (2013). Diffusion of Innovation in Modern School. *International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE), 1(1),* 5-13. Retrieved from https://www.ijcrsee.com/index.php/ijcrsee/article/view/219

Stošić, L., & Stošić, I. (2014). Impact of Computers on the Creativity of Children. *International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE), 2(2)*, 29-34. Retrieved from https://www.ijcrsee.com/index.php/ijcrsee/article/view/131

UNESCO/UIA, (2004). UIA Work Programme 'Education' *UIA/UNESCO Charter for Architectural Education. UIA General Assembly*. Retrieved from: http://www.unesco.org/most/uiachart.htm

UNESCO/UIA. (1966). UIA Work Programme 'Education', *UIA/UNESCO Charter For Architectural Education*. http://www.unesco.org/most/uiachart.htm

Vyas, D., Van der Veer, G & Nijholt, A. (2013). Creative practices in the design studio culture: collaboration and communication. *Cognition, Technology & Work. 15(4)*, 415–443. https://doi.org/10.1007/s10111-012-0232-9

Yang, M. C. (2010). Consensus and single leader decision-makingin teams using structured design methods. *Design Studies. 31(4),* 345–362. https://doi.org/10.1016/j.destud.2010.03.002

DIDACTIC TRENDS AND PERCEIVED TEACHERS' TRAINING NEEDS IN HIGHER EDUCATION: A CASE STUDY

MA Mónica A. Bautista, Corporación Universitaria Minuto de Dios, Colombia
E-mail: monica.bautista@uniminuto.edu
Ed.D. Marisol E. Cipagauta, Corporación Universitaria Minuto de Dios, Colombia
E-mail: mcipagauta@uniminuto.edu

ARTICLE INFO

Case studies
Received: October, 23.2019.
Revised: November, 28.2019.
Accepted: December, 01.2019.
doi: 10.5937/IJCRSEE1903071B

UDK
371.13(862)
37.026(862)

Keywords:
educational innovation,
didactic trends,
higher education,
innovative practices,
teachers training.

ABSTRACT

Today's world requires people who manage their learning and professional updating processes, which claims for a change in educational practices in all levels of education. However, in Higher Education, this transformation relies mostly on teacher's efforts to innovate within the learning environments, requiring institutional efforts to generate strategies towards educational innovation. This paper presents the analysis of didactic trends and training needs of teachers at UNIMINUTO Colombia, based on the data gathered at the Annual Meetings for Innovative Pedagogical Practices and an additional survey applied on-line, to determine teachers' training needs and, furthermore, institutional strategies to strengthen the teaching-learning process. The study uses a mixed methodology through a concurrent triangulation design with qualitative and quantitative methods, with an exploratory scope; both quantitative and qualitative parts of the study counted on a voluntary sampling method. Trend analysis shows that the most used didactic methods are Project-Based learning, Research-Based Learning, and Collaborative Learning. However, the analysis of teachers' appropriation of knowledge about didactics, especially on those strategies, is low or basic, which compared to the training needs expressed by teachers demonstrate that training processes in educational innovation and new teaching methods is crucial to help educational innovation initiatives to evolve. The study stablishes a trend towards the use active-learning methodologies in pedagogical practices, highlighting the necessity of teachers' training in how and when to use them, and setting the importance of including communication skills as a topic in teachers' training programs.

1. INTRODUCTION

Teachers' training programs in higher education focus on curricular activities, pedagogy, and techniques related to students' competencies achievement, but nowadays, areas such as emotion, leadership, and didactics gain great importance as mediators between teachers and their students. One of the primary purposes of this is to enhance professional and personal development in a self- management basis.

Corresponding Author
Ed.D. Marisol E. Cipagauta, Corporación Universitaria Minuto de Dios, Colombia
E-mail: mcipagauta@uniminuto.edu

Active learning strategies have changed the roles in the learning process, stablishing the student as the active player of it on the side of the student himself; but at the same time, it challenges teachers in order to design interactive experiences that allow them to see how to apply knowledge in real situations.

On the other hand, we see how teachers already create many innovative experiences to give cutting- edge responses to a variety of students within the learning environment, each one with different perspectives, learning styles, preferences, and expectations on the higher education process. Meanwhile, higher education institutions keep thinking about creating training programs to strengthen the teaching activity and teachers' performance; but some of them are based on foreign models and other institutions' current programs rather than on the specific needs and possibilities they have.

At the Center for Teaching Excellence in UNIMINUTO, in charge of the design, implementation and evaluation of training programs for more than 4700 teachers in 64 different places all over the country, each one with different realities and resources, it has become essential to know what our professors actually do to improve their teaching practice, how they address learning objectives and what training programs must be created, based on identified needs and knowledge gaps.

Therefore, this study aims first to identify trends within the didactic techniques employed by higher education teachers among the institution, based on their current designs of innovative teaching practices. A second objective point towards the analysis of the degree of didactics' knowledge they currently possess, by analyzing the score given by jurors about the correspondence between the didactic strategy they refer and the practice shown in the methodology section of the texts, to determine possible training needs.

The third objective is to stablish training needs from teacher's perspective, to determine whether there is or not a correspondence between what the findings on the Annual Meeting and their requests, which allows the Center to create training programs from a more pertinent perspective.

1.1. Educational innovation and higher education

Educational innovation is specifically related to all those didactic and methodological strategies that are being incorporated in the educational processes, and that are looking for significant changes in order to respond to the needs of new population groups, new generations from a local and global perspective like decolonizing learning (Ferguson, et. al, 2019) and new teaching modalities such as virtual environments; which implies transformations in terms of resources for learning, roles of teachers and students, teaching and incorporation of tools such as information and communication technologies in pedagogical intermediations (Observatorio de Innovación Educativa del Tecnológico de Monterrey, 2017; Murillo, 2017).

The purpose of educational innovation is far from being merely instrumental and is to become a topic of high interest and impact at all educational levels. In higher education, it acquires great importance given the fact that is there where new professionals are born by "actively understanding and building up meanings and skills" (Lasauskiene and Rauduvaite, 2015, p. 788) who will assume various roles and responsibilities in an increasingly interconnected and interdependent world. However, these connections must emerge from the creation of strategies that direct the efforts, and here is where we begin to find crucial differences between countries and cultures.

For example, the Department of Education, Universities and Research Administration of the Autonomous Community of El País Vasco (2008) issued a document givinig clear guidelines regarding the objectives and lines to which the efforts in educational innovation should be oriented. They stablished 3 fundamental ones:

1) innovation for inclusion (not only in terms of disability), 2) innovation for institutional improvement and 3) innovation for integration with the society of the 21st century. However, in Colombia, innovation is still considered as ICTs the integration of ICT (Information and Communication Technologies) into learning environments, and unfortunately, from the planning of these processes, other perspectives that also have to do with educational innovation such as the central axis of work in the country (Ministry of Education Republic of Colombia, 2016).

However, universities and Higher Education institutions have been able to approximate realities from other places, and this has generated the need to implement new strategies to expand the concept of educational innovation to meet the needs of professionals in training and the external sector and to stay current in an increasingly competitive market. It also led to understand that it is the teacher who materializes these bets and institutional ambitions within the different learning environments, and in the long run they are the ones who ensure the quality of education (Virtual Center for Education News, 2014). That also implies the need to generate strategies beyond pressure and control over teachers for compliance with regulations, which leads to rethinking teacher training and reorienting it towards continuous accompaniment processes for the transformation of teaching (Imbernón, 2011).

1.2. Teachers training research

Among the research developed in higher education around teachers, there are several related to teaching styles (Laudadío and Da Dalt, 2014), teaching competencies (Rivadeneria, 2017) the use of technologies in learning environments (Blink Learning, 2018; Ministry of Education Republic of Colombia, 2016), among other competencies that have allowed the construction of various instruments and indicators to gather information about it (European Union, 2017).

However, the materialization of the teacher competencies become real in the teaching practice, of which he is a student, he is the primary beneficiary, and some investigations try to determine the degree of effectiveness of the active methodologies, while others have focused on identifying trends in general (Hurtado, 2014). In this regard, Elena Hurtado, in 2014, conducts a review of research and concludes that it has not yet been possible to define which methodologies are most effective in specific fields, mainly due to the inconstancy of some authors regarding the publication of its pedagogical strategies in the same line, and the lack of contrast of results. Additionally, the author gives an account of the little academic production in this specific topic for Latin American countries to date, and after an updated review in databases such as EBSCO, the majority of longitudinal investigations, which would account for an impact In the long term in student learning, they remain mostly foreign (Roberts, 2018; McBride and Drake, 2016; Kilgo, Ezell Sheets, and Pascarella, 2015).

Specifically, on didactic trends in Higher Education, there was no scientific information available in databases, mainly because the studies are carried in a one by one basis to validate those practices and their achievements, instead of trends or institutional approaches towards educational innovations. Furthermore, this gap in knowledge also leads to a lack in research about the level of knowledge and appropriation that teachers have on didactic strategies. which for units in charge of teachers' training and qualification, this analysis becomes crucial in order to feed the planning process for a useful accompaniment.

1.3. Learning interests of teachers

As training programs are often planned by institutions based on their interests, and teachers are not involved in the Professional Development planification process, there is also a gap with that topic. Louws, et. al. (2017) perfomed a study in secndary level teachers to determine what they wanted to learn within their professional development plan, and the results showed that they wanted to learn about ICT and subject-matter specific contents, mainly because of the continuous curricular changes taking place, which requieres teachers to be up to date in their subjects. However, some differences were found according to the career level of teachers, thus those with a long experience are more interested in climate and classrom management to adapt themselves to the current generations, while those teachers who are starting in their careers are more interested in classroom organization topics.

However, when cheking information regarding this topic in Higher Education levels, no information was retrieved, and the studies that cited the previously discussed research were drafted again towards teachers competencies, rather than questioning them about their professional interests and topics proposals.

This second gap in knowledge, and the current need of Teachers's Support Units in Higher Education Institutions, like the Center for Teaching Excellence aeiou, lead, to encourage efforts towards pertinent training programs, asking teachers directly becomes also a priority for the University and for this level of education as well.

1.4. Support Centers for Teachers

In Colombia and in other parts of the world, teaching support centers have emerged as an essential part of teacher qualification, many of which are gathered in the RedCrea (Crea, R. Red de Centros de Enseñanza-Aprendizaje: RedCrea, 2018): an organization dedicated to sharing professors' training strategies in different universities of the country since its creation in 2017, to which the aeiou Teaching Center of Excellence of UNIMINUTO (Aeiou Teaching Center of Excellence, 2018) created in 2016 adheres.

The commitment of UNIMINUTO towards educational innovation was strengthened and concretized with the creation of the Aeiou Center for Teaching Excellence, which aims primarily to generate training and accompaniment spaces for teachers in their process of teaching transformation. Before 2016, the teacher's exercise was not

very visible in the institution unless it made part within a specific investigation, which left a great void when trying to characterize the practices of teachers, their impact on student learning, and training needs towards educational innovation. Therefore, the Meeting of Innovative Pedagogical Practices has been the scenario that provided that window of observation and analysis.

A preliminary research was made with data from 2017 and 2018 calls of the Meeting, focusing mainly on the trending information, some of which will be used in the present research in order to make a context for the comparison with 2019 data (Moyano, M. E. C., and Pinzón, M. A. B., 2019). That firs study helped to organize training programs aimed at teachers' around the country using a webinar methodology, which according to the Center for Teaching Excellence aeiou, the coverage and access would be covered and the access to information would improve the results seen on the preliminary study.

When checking the stats for live participation and visualizations of the resources, obtained from Campus (the department supporting https://webinar.uniminuto.edu/) and YouTube, it showed that the average of live attendees in 2018 was 29 teachers, and the average of visualizations for the same year was 203 views, while teachers population at UNIMINUTO is above 4700, which is less than 10% of the total population.

The low participation and visualization rate sets the question whether teachers know that this platform and training resources and spaces do exist, or if there is another reason, why they do not engage with these resources, even though they say in the survey that those topics are actually, what they are interested. This also leads to stablish the question about the effectivity and convenience of the communication channels used to get in touch with them, taking into account that the main one used in 2018 was the company's email.

In 2018 and 2019, the promotional video inviting teachers to participate in the Meeting for Innovative Pedagogical Practices, had a specific invitation to review those resources, but in the end it's essential to identify if the message is really getting to teachers, if they are using those resources as information sources to prepare their pedagogical strategies and practices, or if they are not taking that into account. However, this specific topic requires a research for its own.

Based of the knowledge gaps found during the revision, and the interesst of Higher Education support Centers such as aeiou, the present study aims to analyze: 1) the trends on didactic strategies use in innovative pedagogical practices gathering and comparing data from 2017, 2018 and 2019 2) determining new training needs from the analysis of the Pedagogical Practices Meeting extracted from jurors evaluation on the presented practices and 3) establishing training interests from teachers' perspective, contrasting it with the analysis of teachers' current knowledge and appropriaton of didactics, so the Center for Teaching excellence aeiou can establish a more pertinent and engaging training and accompanimenrt plan to promote better educational innovations.

2. MATERIALS AND METHODS

2.1. Design

The present study frames within a mixed methodology due to the use of quantitative and qualitative analysis, with a non-experimental approach and a concurrent triangulation design, but with an exploratory scope due to the lack of previous research on the specific institution (Hernández-Sampieri, Fernández, and Baptista, 2014).

2.2. Data collection and sample

There are two primary sources of information, the first one used mainly in a quantitative analysis of didactic strategies used by UNIMINUTO teachers during 2017, 2018, and 2019, using the Innovative practices presented to the second, third and fourth Meetings of Innovative Pedagogical Practices, hosted at UNIMINUTO. This analysis also focuses on analyzing the consistency score, given by the evaluators, that allow us to know whether the technique te teacher pleads to use is the one they use.

The second source is an open answer questionary, where teachers set up their perceived training needs, which led to quantitative and qualitative analysis. In the end, the triangulation process will take place on the teachers' perceived needs and the training needs resulting from the consistency analysis.

2.3. Innovative Pedagogical Practices and Evaluation

Data collection took place on the Annual Meeting of Innovative Practices, years 2017, 2018, and 2019. This event is open to every teacher at UNIMINUTO in Higher Education Level and focuses mainly on the presentation of those innovative practices that take place within learning environments, in order to aid and improve the teaching-learning process.

The necessary information the proposal must contain are: (a) pedagogical objective(s)' of the innovative practice, (b) the didactic strategy used or designed by the authors', (c) the methodology understood as the step by step of the implementation of the strategy, and (d) results, which are related to the pedagogical objectives directly.

An online form was the primary way to collect data from the authors, managed by Lime Survey, where information such as the branch they worked at, the disciplinary program, and the didactic strategy they used by selecting from a checklist, according to their knowledge and perception of it. The option "another" was also in the checklist for those participants who considered that any available option matched their strategy.

As the event advanced, from its 2017 to the 2019 version, some techniques were added later, which corresponded to the continuous updating process within the Center for Teaching Excellence aeiou and the information available for teachers via Webinars at Webinar.uniminuto.edu or during training sessions.

Figure 1 shows the didactic strategies from which authors could choose in 2017, and the additions in 2018 and 2019, from which they chose when making the registration process of their innovative pedagogical practice.

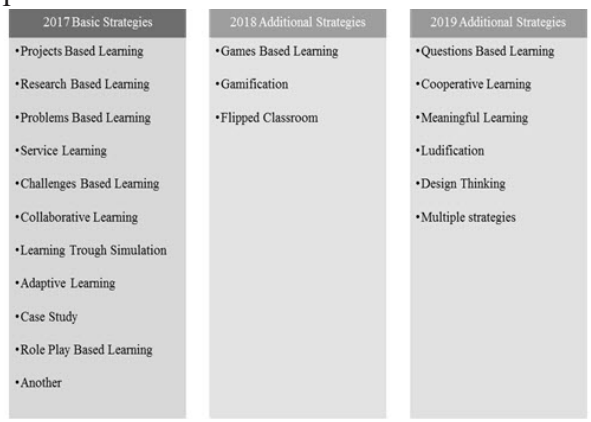


Figure 1. Didactic strategies list for 2017 and additions for 2018 and 2019.

If the pedagogical practice did not match with any of the available categories, teachers had to select the option "Another", and for the 2019 call, if they had used more than one strategy, they had to mark the option "Multiple strategies".

2.4. Sample and sampling method

For 2017, the practices presented were 115, 143 for 2018, and in 2019 the call gathered 80 practices for a total amount of 338 texts; and since participation in the event is voluntary, the sampling, in this case, was non-random voluntary.

2.5. Evaluation of Innovative Pedagogical Practices

International and national jurors evaluated the innovative pedagogical practices texts by sending the results through an online form, where they graded the criteria explained in Table 1 to give a score on each category.

Table 1. Core evaluation criteria

Criteria	Definition
Title	The title must be authentic, creative and must reflect the core of the Pedagogical Practice
Abstract	The abstract is clear, concrete and allows identifying the core elements of the innovative pedagogical practice.
Pedagogical Objective(s)	The objective is clearly set and answers what is going to be developed in the pedagogical practices, how and why.
Theoretical base	The author supports his/her practices on theories and author referring the didactic strategy and the discipline.
Methodology	Shows in a systematic way the implementation on the innovative pedagogical practice, aiming to reach the pedagogical objective(s).
Results	Results show clearly if the pedagogical objective was achieved or not, and other benefits from the practice.
Consistency	Determines the coherence between the didactic strategy referred by the author and the methodology

Note: other criteria like the format of the text and sources where included on previous evaluation instruments, however in 2019 they were removed as the core elements within the practice narrative where stablished.

After the evaluation, scores for each criteria where added to obtain a final numerical score for each Innovative Pedagogical Practice, allowing to determine the winners on each event who presented their practices in the Annual Meeting.

A double-blind methodology was used to avoid possible biases within the evaluation process, and a specific section of comments was available for jurors to set additional comments for the authors, in order to help them improve their practices and texts for further meetings.

2.6. Trends and appropriation of didactic strategies by teachers

While the didactic strategy, referred by the author from the start, was the principal element for the analysis of trends in educational innovation, the critical criteria to analyze the knowledge that teachers have about didactics was the consistency score, aimed to grade the coherence between the didactic strategy referred by the author, and the methodology (didactic strategy) section. That served to evaluate the appropriation degree that teachers have on strategic methodologies.

- 0 to 1.99 Shallow appropriation or shallow knowledge of the selected strategies
- 2.00 to 2.99 Low appropriation or low knowledge of the selected strategies
- 3.00 to 3.59 Basic knowledge or appropriation of the selected strategies
- 3.60 to 4.19 Intermediate knowledge or appropriation of the selected strategies
- 4.20 to 5 Advanced knowledge and appropriation of the selected strategies

The Center of Teaching Excellence use this scale mainly to have a categorization of knowledge degree on didactics to determine knowledge appropriation levels on didactics, and possible training needs on this specific topics.

2.7. What do teachers say they need? Requested services and topics of interest

The qualitative part of the data gathering took place in 2019, via an online survey with three open questions, of which two are part of the current research. Those questions were:

- "What services would you like the Center for Teaching Excellence to provide?"
- "What topics would you like the Center for Teaching Excellence to address or deepen, and why?"

These answers were assessed through inductive content analysis (Zhang and Wildemuth, 2017), where the categories emerged from the answers given by the teachers who participated in this survey (Hsieh & Shannon, 2005, in Zhang and Wildemuth, 2017). Those resulting categories were analyzed from a quantitative and a qualitative perspective.

In this phase, the sampling method was

also voluntary and gathered a total amount of 188 participants, excluding 19 of them due to lack of information or clarity in their responses.

3. RESULTS

As mentioned before, the main goals of the present research were:

1) To identify trends within the didactic techniques employed by higher education teachers among the institution, based on their current designs of innovative teaching practices.

2) To analyze of the degree of didactics' knowledge teachers possess through the categorization of the consistency between the didactic strategy referred by the teacher and the methodology section of the texts, to determine possible training needs.

3) To stablish training needs from teacher's perspective, to determine whether there is or not a correspondence between the findings on the Annual Meeting and their requests.

Results in this section address each objective in the specific order, starting with the trends identification, following with the consistency analysis and the identification of training needs, to end with the analysis of teacher's training needs and the triangulation of those needs with the findings for the second objective.

3.1. Didactic trends: 2017, 2018, and 2019

The information was collected on the first part on the call, by asking teachers what strategy or didactic they used for their practices

Based on the information regarding the didactic techniques that teachers claimed to have used in their innovative experiences, it was possible to classify and count the amount of innovative practices according to the selected strategy, shown in Figure 2. Which also lead to identify which were applied more often by teachers in 2017, 2018 and 2019: Projects Based Learning, Research-Based Learning, and Collaborative Learning, setting a trend for UNIMINUTO.

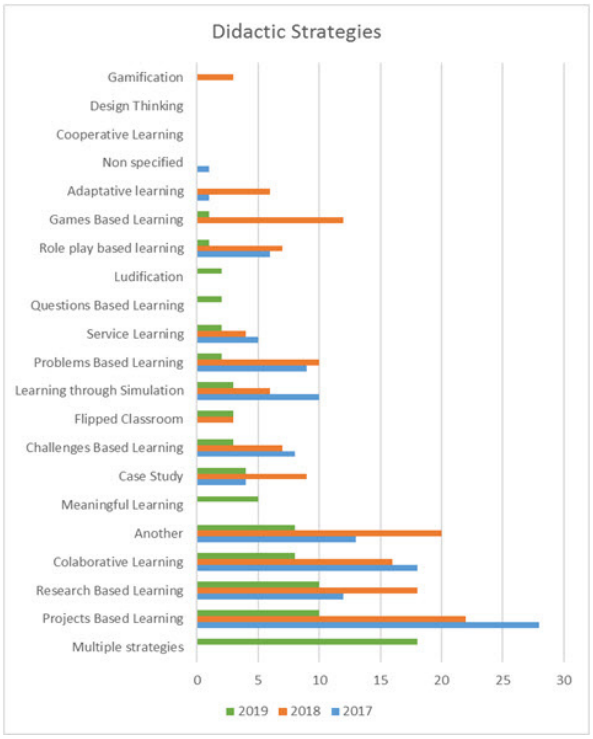


Figure 2. Amount of pedagogical practices per didactic strategies. Comparison 2017, 2018, and 2019 at the Meeting of Innovative Pedagogical Practices. Compilation extracted from Moyano, M. E. C., and Pinzón, M. A. B., 2019.

These results ratify the trend identified in the preliminary study (Moyano, M. E. C., and Pinzón, M. A. B., 2019) and also indicate a sustained interest from teachers in strengthening competencies, skills and abilities in students that are usually related to Project-Based Learning, such as responsibility, autonomy and self- dependence, problem solving, interdisciplinary approaches, communication and social abilities (Zhang and Wildemuth, 2017). While it also allows the student to link reality to what they are learning in the classroom, it increases motivation among students (Galena de la O, 2006). Moreover, it allows them to prepare for real-life challenges, increasing employability, and career development (Harvey et al. 2002; Kumar, 2007. in Leal Filho, Shiel, and Paco, 2016).

Collaborative work, which is the primary goal of collaborative learning, has been spotted as one of the critical competencies that new professionals must acquire for the 21st century within different careers and contexts (Pang, Wong, Leung, and Coombes, 2019; Tan, Yang, Koh, and Jonathan, 2016; Jogerst, et. al. 2015), in order to develop other skills and abilities that are required within the

occupation field like collaborative problem solving (Sun et. al., 2020). Alternatively, engaging with people at work (Fernández-Aráoz, 2014), for example, in coaching activities with peers, and generating willingly new proposals (Cumberland, Herd, Alagaraja, and Kerrick, 2016) that allow companies to renew their processes or gathering new ideas to remain current or stay on top among their competitors.

Last, but not least, research competencies as the principal goal of the Research-Based Learning, are necessary not just for academic jobs, but for each profession to keep knowledge updated, discover new paths and better ways to address current problems and future ones. Those are also related to critical and analytical thinking and data analysis, both important for employers (Pang, Wong, Leung, and Coombes, 2019) and other actors.

Other strategies, such as adaptive learning, simulations, and gamification, require a more significant technological development in order to get the desired pedagogical results.

The category another gathered a mix other strategies that were not available in the registration list, and occupied the second place in 2018, being however under the Projects Based Learning Strategy. Nevertheless, it also had the lowest number of practices under this classification in 2019, when the main category selected by teachers was multiple strategies in which teachers combined different techniques to create their pedagogical innovations, resulting in seventeen pedagogical proposals under this title (see Table 2). However, as those categories work with a variety of techniques and didactic strategies, they did not count in the present trend analysis, because it will require a further analysis on each proposal.

Table 2. Multiple Strategies Innovative Pedagogical Practices 2019

Practice ID	Didactic Strategy (strategies)
4	Meaningful Learning, Ludification
25	Project-Based Learning, Collaborative Learning, Service Learning
106	Games Based Learning, Problems Based Learning, Projects Based Learning
164	Challenges Based Learning, Cooperative Learning, Collaborative Learning, Ludification, Corporal Expression and Motion, Creativity, Communication and Games
195	Meaningful Learning, Learning through Role Play
251	Cooperative Learning, Collaborative Learning, On-Site Learning, Role Play
264	Meaningful Learning, Case Study
306	Collaborative Learning, Learning by Simulation
321	Challenges Based Learning, Cooperative Learning
339	Challenges Based Learning, Case Study
340	Collaborative Learning, Meaningful Learning
341	Collaborative Learning, Learning by Simulation, Learning Through Role Play
355	Learning by Simulation, Learning Through Role Play
357	Research-Based Learning, Problems-Based Learning
373	Meaningful Learning, Design Thinking, Gamification
378	Projects-Based Learning, Gamification
398	Collaborative Learning, Case Study

Note: Information extracted from the application survey to the Meeting of Innovative Pedagogical Practices 2019.

This information gives the research new elements to think about: How do teachers put together these strategies? and How do they differentiate them among the process?. That also leads to a further look at how consistent are the pedagogical practices themselves with the strategies that authors are claiming to use.

3.2. Consistency between the claimed strategy and the pedagogical practice description, comparison 2017- 2018

To evaluate this item, researchers took the "consistency" punctuation given by evaluators to the practices, where they had to compare the "announced didactic strategy" against what they saw in the strategy's

description section.

Afterward, practices were grouped by didactic strategy to obtain the consistency score average, in order to determine the degree of appropriation and knowledge teachers showed on their proposals, about the didactic strategy they used.

A comparison between 2017 and 2018 show that in 2018, most didactic strategies obtained a lower level on consistency according to evaluators, compared to 2017 (see figure 3).

These results represent an apparent decreasing in knowledge about didactic strategies, despite the training processes that took place in 2018. However, it also may suggest a difference in the evaluation performed by jurors, which has to be revised furthermore. It is important to indicate that those strategies that do not have an associated score for 2017 appeared in 2018, which is why there is no data available to compare; and the categories Another Strategy, and Multiple Strategies are out of the analysis due to their particular features.

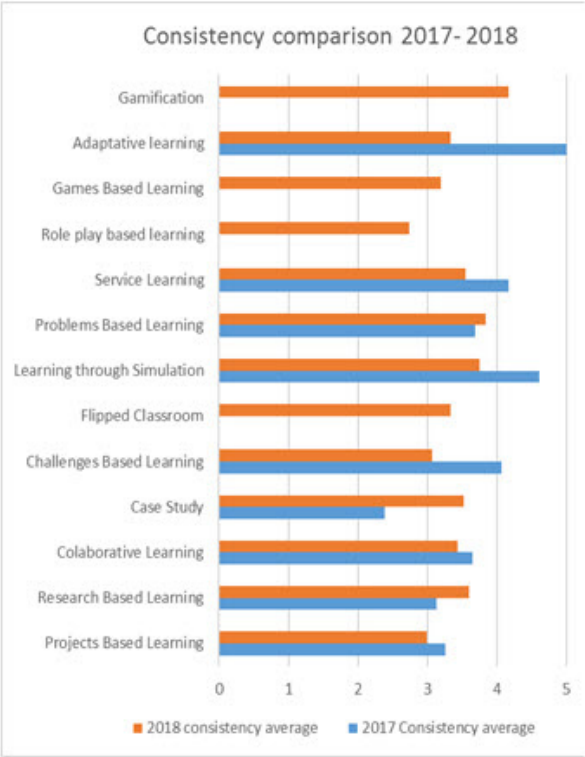


Figure 3. Consistency scores between the claimed strategy and the strategy's description section, assigned by jurors. Compilation from Moyano, M. E. C., and Pinzón, M. A. B., 2019.

Taking the average score as a basis for the qualitative assessment about the appropriation and knowledge level that teachers have on innovative strategies, according to the scale proposed in the methodology section of this document. Table 3 shows the obtained results:

Table 3. Didactic strategy appropriation level, comparison 2017- 2018

Didactic Strategy	2017 appropriation level	2018 appropriation level
Projects-Based Learning	Basic	Low
Research-Based Learning	Basic	Intermediate
Collaborative Learning	Intermediate	Basic
Case Study	Basic	Basic
Challenges Based Learning	Intermediate	Basic
Flipped Classroom	Non applied	Basic
Learning through Simulation	Advanced	Intermediate
Problems Based Learning	Intermediate	Intermediate
Service Learning	Intermediate	Basic
Role play-based learning	Intermediate	Low
Games Based Learning	Non applied	Basic
Adaptative learning	Advanced	Basic
Gamification	Non applied	Intermediate

Note: Classification of didactics' appropriation level based on the Scale shown in methodology. Table resulting from the compilation of data shown in Moyano, M. E. C., and Pinzón, M. A. B., 2019.

According to data, teachers' level knowledge and appropriation level in 2017 mostly rated Intermediate, while in 2018, the predominant level was mostly basic, decreasing in almost every category, except for Research-Based Learning that went from Basic to Intermediate.

More interesting is the fact that two of the three trending didactic strategies went to a lower score, which leads to believe there is a possible lack of knowledge of teachers regarding didactic strategies specifications, or perhaps another weakness within the process

of creating or socializing these practices (Moyano, M. E. C., and Pinzón, M. A. B., 2019).

These results lead to new questions, additional to those placed of the preliminary research, that will take place on the discussion. The analysis for 2019 is still in progress, which is why those data set are not available in the current analysis.

3.3. What do teachers need? Requested services from teachers and topics of interest

Teachers' answers to the question: Which services would you need from the Center for Teaching Excellence? Produced nine categories, shown in figure 4. The most requested services are training programs and personalized advisory.

Required Services	1	83
Meetings	1	12
On site advisory	1	5
Pedagogic retirements	1	3
Personalized advisory	1	15
Resources development	1	8
Short Courses	1	3
Teams conformation	1	4
Training programs	1	32
University exchange programs	1	1

Figure 4. Services requested to the Center of Teaching Excellence by teachers at UNIMINUTO. Image extracted from NVIVO.

Training programs, according to teachers, should tackle topics such as Learning Assessment, Innovative Practices Design, the use of Current and Innovative Tools in the Learning Environment, Pedagogy, and Didactic Strategies for Virtual Education, Content Development and Production, and Research within the Learning Scenario.

While they request the personalized advisory for:

"…la incorporación de temas como innovaciones pedagógicas a las investigaciones [the incorporation of pedagogical innovations to researches]" (Participant 62).

"…problemáticas emergentes que planteamos los docentes [Emerging problematics set by teachers]" (Participant 142).

"…innovación, proyectos de emprendimiento y trabajos de grado [innovation, entrepreneurship projects and thesis] (Participant 57).

About topics of interest in which teachers want to deepen or explore, six mayor categories were identified (see Figure 5).

Topcis of interest	1	203
Disciplinary topics	1	24
Other areas	1	17
Personal development	1	9
Research	1	24
Strengthening of teaching	1	127
Students' accompaniment	1	2

Figure 5. Coding of topics of interest to teachers to be included in their training and qualification process. Image extracted from NVIVO.

The category with more references was Teaching Strengthening, which is the target of the present research, followed by Research and Disciplinary related topics. Within the first one, some subcategories were set: (a) Pedagogy and didactics, (b) ICT tools, (c) Academic publication, (d) Inclusive education, (e) Learning evaluation, (f) teaching for specific contexts and (g) collaborative work among teachers (see Figure 6).

Inclusive education showed two big topics: "Educational inclusion for cultural diversity and disability" (participant 41), especially related to "inclusive didactic strategies for inclusive education" (participant 126).

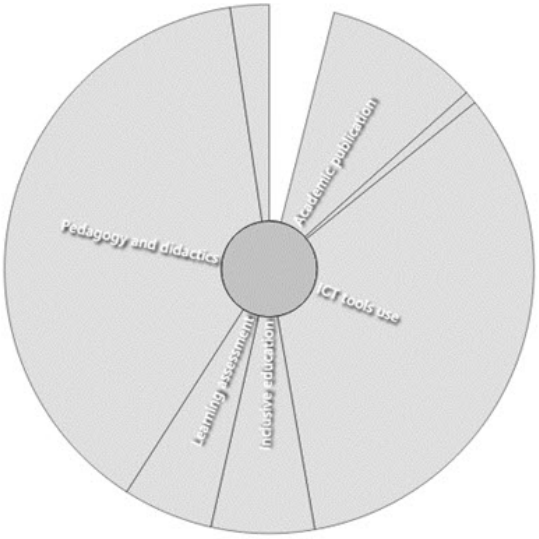


Figure 6. Subcategories among Teaching Strengthening. Image extracted from NVIVO.

.

While Academic Publication was related to topics such as "workshops on how to write

academic papers and research articles to participate in research calls and other events" (Participant 48).

About learning assessment, teachers ask for training in Assessment Methodologies (Participants 3, 23 and 119), Innovative Methods for Learning Assessment (Participants 81 and 119).

ICT Tools Use addresses specific training needs on how to use current and new tools within the learning environment, such as Moodle 3.5 suite, simulators that are already in the curriculum such as Sniffy, PsySim, MathLab, SIMDEF, MarketStrat, SIMPRO, MARKLOG, BioTK, SICIEM… among others included in the curriculum. Mainly because:

"La Universidad cuenta con muchas herramientas tecnológicas que permiten el desarrollo y la formación tanto de los estudiantes como de los formadores, pero en muchas ocasiones, los tutores no conocemos las herramientas y aplicaciones de todo con lo que la Universidad cuenta. [The University has many technological tools that allow the development and training of both teachers and students, but very often, we do not know about those tools and apps the University has]" (Participant 152).

Other topics in this category are apps to improve interaction processes (Participant 152), Virtual Learning Environments, Technology and Didactics (Participant 126), educational Apps and web tools (Participants 119 and 147), augmented reality (participant 8) and software development for specific topics and courses (Participant 98).

The interest in ICT training relies on the belief that by using ICTs "…hacen que el proceso de enseñanza aprendizaje sea más dinámico [makes the teaching-learning process more dynamic]" (Participant 40).

3.4. Pedagogy and Didactics as a concern for Higher Education Teachers

This category is one of the most important, where teachers let us know what they feel they need to learn regarding didactics and pedagogy, which are the main elements of those innovative pedagogical practices they propose. Some of the topics requested for training were Pedagogical Models and Methodologies (Participant 75), such as constructivism and critical thinking (Participant 32), Hermeneutics, Participatory Action Research and Experiential Education (Participant 33), Ludification and virtual games to work with Game-Based Learning (Participants 136, 19, 44, 47), and methodologies for Virtual Learning Environments (Participant 131). As well as Transmedia for education (Participant 35), and Innovation and Creativity (Participants 45 and 57).

There are also other suggestions like How to apply pedagogy in companies and the business sector through Communities of Practice (Participant 116), and how to articulate pedagogical processes with learning communities and other relevant networks (participant 111).

However, the most requested services were workshops, experiential activities, and personal advisory on how to create didactic strategies from a critical and reflexive perspective, related to different areas of knowledge that also integrate technologies and other innovations and allow collaboration between students.

Therefore, they also ask to know about "… aula pedagógica o ejemplos exitosos en otras universidades a nivel nacional o internacional [… pedagogy in the classroom, and successful examples in national or international universities]" (Participant 92), as well as information regarding Higher Education Trends in teaching methods and practices and "… formación en la era digital [education in the Digital Age]" (Participant 124).

The main reasons behind education innovation and their demands are related to the teachers' interest on making learning more dynamic (Participants 41), meaningful and experiential for the students (Participant 89); more pertinent to each discipline and the curricular needs (Participants 66, 90, 99), complementing the teaching practice through complementary strategies and tools (Participant 95).

4. DISCUSSIONS

The analysis drawn from the results above and the previous study (Moyano, M. E. C., and Pinzón, M. A. B., 2019), is presented in three levels: the first one is related to the trends observed in the Meetings of Innovative Pedagogical Practices, which is a first effort towards the beginning of research in this particular field due to the lack of previous knowledge in it. The second one addresses

the teachers' knowledge and training needs, contrasted with the research by Louws, et. al. (2017).

4.1. Didactic trends and challenges: first results on the matter

To start researching about didactic trends, the previous findings (Moyano, M. E. C., and Pinzón, M. A. B., 2019) specified a possible trend confirmed with 2019 results, stablishing Project-based Learning, Research-Based Learning, and Collaborative Learning again as the most used strategies by teachers in their innovative practices, drawn from the individual strategies analysis. Therefore, in this case, it is necessary to keep evaluating the following years to verify these results and expand the research to ask teachers about their motivation to select those specific didactic approaches.

4.2. Teachers' specific knowledge of didactic strategies for pedagogical strategies design

In 2019, the Multiple Strategies category was the most selected by teachers. However, when checking the options up close, it could be seen that in some cases the selected didactics are actually embedded, as is the case of Projects-Based Learning or Problems-Based Learning, and Collaborative Learning or Cooperative Learning, taking into account that the first ones aim to improve collaboration and/or cooperation among students (Walker, Leary, Hmelo-Silver, and Ertmer, 2015; Lee, Huh, and Reigeluth, 2015). That leads to question whether the practices have specific phases to target collaboration or cooperation before the Projects-Based Learning or Problems-Based Learning phase takes place, or if teachers do not know that those are implied on those strategies.

Other cases as the practice 164 (See table 1) show a significant amount of strategies used in the pedagogical practice, but the selection itself shows some inconsistencies (collaborative and cooperative learning in the same practice, for example) and the use of communication means (corporal expression) and goals (such as creativity) in the didactic strategy section. That leads to more substantial questions regarding the actual knowledge that Higher Education teachers have on didactic strategies and learning goals when designing activities and pedagogical practices.

The previous findings concur with the consistency results shown above, where the appropriation level of knowledge in didactic strategies is mostly Basic, and correlates with teachers' request on training programs addressing didactic strategies and didactics design; showing that some teachers already acknowledge their lacks, and the Center for Teaching Excellence aeiou already has training programs, especially virtual ones at webinar.uniminuto.edu.

4.3. What to reinforce in teachers' training?

As the preliminary study stated, it is crucial to identify if the consistency issue on the formulation of pedagogical practices depends on the lack of specific knowledge about didactic strategies and their specific elements, or if there is a misunderstanding related to the text itself and the way teachers do present their practices and results.

If the first, training programs must focus on a workshop basis where teachers can learn the specifics of different strategies ending in the implementation of those in their current courses, what requires a strong accompaniment in the design, implementation, and evaluation process of new didactic approaches.

If the second, training programs must be aimed to improve communication skills in teachers, both written and verbal, to enhance the narrative process and make it more accurate to tell what they do in the learning environments. That also leads to the discussion of whether the outcomes, resources, and publications resulting from these innovative efforts should be published for open access and how to do it properly.

Either possibility is supported on the current topics teachers are requesting for the next qualification cycles, but identifying which one is the most critical means it is necessary to read carefully into every paper to define which the most urgent need is, and that is the topic for further investigation.

However, as educational institutions know, to offer training programs is one thing, but to engage teachers in it is a different matter, which is why teachers' engagement has to be seen in the eyes of its beneficiaries.

4.4. Teachers' engagement in training as a challenge

This last part contrasts the quantitative findings about teachers' training need from the analysis, with the results found in the qualitative analysis of their responses when asked about their training interests and the research by Louws, et. al. (2017).

The first finding was that Higher Education Teachers are interested in having a training aimed at improving pedagogical competencies and habilities in contrast to what Louws, et. al. (2017) found. That could be explained because while secondary education requests necessarily from tachers to have strong pedagogical skills and training, Higher education focuses mainly on the professional training, therefore, teachers are often more versed in their disciplines than in pedagogy itself. However, specific training to be up to date in knowledge is alro requested bu Higher Education teachers, what could be more related to the discipline itself than to curricular changes only.

Findings from the analysis also show that teachers need to reinforce their knowledge to achieve educational innovations, but it is important to provide different options and sceneries where they can practice and apply their knowledge, rather than just getting theinformation. That sets up a challenge for accompaniment strategies, even more in a context with such variety as UNIMINUTO's. And also raise questions towards the creation of collaborative networks to allow teachers to share knowledge, strategies and to develop communities of practice, both in pedagogical matters and disciplinary ones.

Engagement, however, is only developed after the sense of belonging and being listened to arises; so the training planing must have into account teachers' requests in order to gather them around their interests, increasing participation and lowering dessertions, which in this case requieres a concertation with other areas among the university to generate a more complete startegy that does not depend only in teachers' interests, but shows them support in their efforts so educational innovations keep evolving.

5. CONCLUSIONS

Current strategies used by higher education teachers in UNIMINUTO want to encourage active learning methodologies in the classroom, to activate students and change roles in the teaching-learning process. Especially, those aimed at the creation of projects and the strengthening of competencies such as teamwork, data analysis and self-regulation, are preferred by teachers in their innovative exercises. In spite of this, the analysis highlighted the need of going deeper and further in the evaluation of the texts presented for the Annual Meetings of Innovative Pedagogical Practices, to identify if the low coherence scores in the practices are only related to the lack of knowledge and appropriation of didactic strategies, or if there is a necessity to work on improving communication skills in teachers. Mainly because there could be an assumption of expertise on that specific matter, which is why a text review and a qualitative analysis of them is crucial for the following phases.

That will also help the Center for Teaching Excellence aeiou to establish the most urgent topics teachers need to improve their didactic designs or the narrative they use to share them, thus having that information, the training offer will be more accurate a to accompany teachers on their qualification path. Doing so requires reviewing the contact and communication strategies that the Center has to get in touch with them, and evaluate the points that would help to engage with them and make the training more effective.

In June 2019, The Center for Teaching Excellence developed a new platform through Yammer to create a network between teachers at UNIMINUTO, making that a new communication-interaction channel with teachers, where it is expected to see ideas exchange between them, participation and comments. So far, it has allowed communicating with teachers in another scenery, where they can comment and share their own interests, but is still in the starting phase.

The main conclusion extracted from this research is that, even though there are elements to improve, there is an intention from teachers to promote active learning in students and the acquisition of other abilities and competencies beyond knowledge procurement and concepts' memorization. Nevertheless, it needs institutional support through the creation of training and professional development processes that consider teachers' opinions and interests in order to be more engaging and, therefore, effective to achieve a real and sustained effort towards educational innovation.

This research will show a more robust and complete analysis in 2023, gathering information from 2017-2022, including those instruments and elements that have not been taken into account so far.

ACKNOWLEDGEMENTS

This article is a result of the project Educational Innovation at the Center for Teaching Excellence aeiou at UNIMINUTO, and it is based on all those teachers who have participated every year in the Annual Meeting for Innovative Practices, without whom this research could not be possible.

Conflict of interests

The authors declare no conflict of interest.

REFERENCES

Administración de la Comunidad Autónoma del País Vasco Departamento de Educación, Universidades e Investigación. (2008). *Líneas Prioritarias de Innovación Educativa 2007-2010.* [Priority Lines of Educational Innovation 2007-2010]. RGM S.A. Retrieved from: https://www.euskadi.eus/contenidos/informacion/dig_publicaciones_innovacion/es_sist_edu/adjuntos/13_hezkuntza_sistema_000/000003c_Pub_EJ_lineas_0710_c.pdf

Blink Learning. (November 2018). *IV estudio sobre el uso de la tecnología en la educación.* [4th study about the use of technology in education] Retrieved from: https://www.realinfluencers.es/2018/11/13/iv-estudio-sobre-el-uso-de-la-tecnologia-en-la-educacion/

Centro de Excelencia Docente aeiou. (September 14, 2018). *Centro de Excelencia Docente aeiou Web Site.* [Center for Teaching Excellence aeiou Web Site] Retrieved from: http://www.uniminuto.edu/web/centroaeiou

Centro de Formación e Innovación Educativa. (2016). *Modelo de Innovación Educativa. Estrategias y acciones para generar la innovación educativa.* [Educational Innovation Model. Strategies and actions to generate educational innovation] Retrieved from: https://innovacionenredenlaencb.files.wordpress.com/2016/12/modeloinnovacioneducativa.pdf

Centro Virtual de Noticias de la Educación. (May 5, 2014). *La calidad en la educación depende directamente de la calidad de los profesores, los educadores y los currículos*, Clare Kosnik. Retrieved from: http://www.mineducacion.gov.co/cvn/1665/w3-article-340967.html

Crea, R. Red de Centros de Enseñanza-Aprendizaje: RedCrea (2018). [Network of Teaching-Learning Centers: RedCrea]. Retrieved from: http://redcrea.co.

Cumberland, D. M., Herd, A., Alagaraja, M., & Kerrick, S. A. (2016). Assessment and development of global leadership competencies in the workplace: A review of literature. *Advances in Developing Human Resources, 18(3)*, 301-317. https://doi.org/10.1177/1523422316645883

European Union [Unión Europea]. (2017). *Marco Europeo para la competencia digital del profesorado* [European Framework for Teachers' Digital Competency]. Retrieved from https://ec.europa.eu/jrc/sites/jrcsh/files/digcompedu_leaflet_es-nov2017pdf.pdf

Ferguson, R., Coughlan, T., Egelandsdal, K., Gaved, M., Herodotou, C., Hillaire, G., ... & Misiejuk, K. (2019). *Innovating Pedagogy 2019: Open University Innovation Report 7*. Retrieved from: http://oro.open.ac.uk/59132/

Fernández-Aráoz, C. (2014). 21st-Century talent spotting. *Harvard Business Review, 92(6)*, 46-54. Retrieved from: https://hbr.org/2014/06/21st-century-talent-spotting

Galeana De La O, L. (2006). Aprendizaje basado en proyectos. Investigación en Educación a distancia. *Revista digital. Rescatado el, 16*. [Project Based Learning]. Retrieved from: http://ceupromed.ucol.mx/revista/PdfArt/1/27.pdf

Harvey, L., Locke, W., Morey, A. (2002) Enhancing Employability, Recognising Diversity: Making links between higher education and the world of work. London: Universities UK and the Careers Services Unit. Retrieved from https://www.qualityresearchinternational.com/Harvey%20papers/Harvey,%20Locke%20and%20Morey%202002%20Enhancing%20employability.pdf

Hernández- Sampieri, R., fernández, C., & Baptista, P. (2014). *Metodología de la Investigación* [Research Methodology] (Sixth ed.). México D.F.: McGraw Hill.

Hurtado, G. E. (2014). ¿Cuáles son las tendencias en las metodologías de enseñanza de la última década en iberoamérica?-¿ Which are the trends in the teaching methods of the past decade in iberoamérica?. [Which are the trends in teaching methodologies for the last Decade in Ibero America?] *Revista científica, 1(18),* 86-99. https://doi.org/10.14483/23448350.5564

Imbernón, F. (2001). Claves para una nueva formación del profesorado. [Keys to a new teacher training]. *Revista Investigación en la Escuela, 43,* 57-66. Retrieved from: http://hdl.handle.net/11441/60307

Jogerst, K., Callender, B., Adams, V., Evert, J., Fields, E., Hall, T., ... & Simon, L. (2015). Identifying interprofessional global health competencies for 21st-century health professionals. *Annals of Global Health, 81(2),* 239-247. https://doi.org/10.1016/j.aogh.2015.03.006

Kilgo, C. A., Sheets, J. K. E., & Pascarella, E. T. (2015). The link between high-impact practices and student learning: Some longitudinal evidence. *Higher Education, 69(4)*, 509-525. https://doi.org/10.1007/s10734-014-9788-z

Lasauskiene, J., & Rauduvaite, A. (2015). Project-Based Learning at University: Teaching Experiences of Lecturers. *Procedia - Social and Behavioral Sciences, 197*, 788- 792. https://doi.org/10.1016/j.sbspro.2015.07.182

Laudadío, M. J., & Da Dalt, E. (2014). Estudio de los estilos de enseñanza y estilos de aprendizaje en la universidad. [Study of teaching styles and learning styles in college] *Educación y educadores, 17(3)*, 483-498.

https://doi.org/10.5294/edu.2014.17.3.5

Leal Filho, W., Shiel, C., & Paco, A. (2016). Implementing and operationalising integrative approaches to sustainability in higher education: the role of project-oriented learning. *Journal of cleaner Production, 133,* 126-135. https://doi.org/10.1016/j.jclepro.2016.05.079

Lee, D., Huh, Y., & Reigeluth, C. M. (2015). Collaboration, intragroup conflict, and social skills in project-based learning. *Instructional Science, 43(5),* 561-590. https://doi.org/10.1007/s11251-015-9348-7

Louws, M. L., Meirink, J. A., van Veen, K., & van Driel, J. H. (2017). Teachers' self-directed learning and teaching experience: What, how, and why teachers want to learn. *Teaching and teacher education, 66,* 171-183. https://doi.org/10.1016/j.tate.2017.04.004

McBride, J. M., & Drake, R. L. (2016). Longitudinal cohort study on medical student retention of anatomical knowledge in an integrated problem-based learning curriculum. *Medical teacher, 38(12),* 1209-1213. https://doi.org/10.1080/0142159X.2016.1210113

Ministerio de Educación Nacional República de Colombia. (2016). *La innovación educativa en Colombia*. Buenas prácticas para la innovación y las TIC en Educación. Retrieved from: https://n9.cl/6cig

Moyano, M. E. C., & Pinzón, M. A. B. (2019). Las prácticas pedagógicas un reconocimiento a la innovación/Práticas pedagógicas reconhecimento à inovação. [Pedagogical practices, an acknowledgement to innovation]. *Brazilian Journal of Development, 5(9),* 14814-14825. https://doi.org/10.34117/BJDV5N9-081

Murillo, A. (2017). *¿Qué es innovación educativa. [What is ducational Innovation?]* Retrieved from: https://observatorio.itesm.mx/edu-news/innovacion-educativa

Observatorio de Innovación Educativa del Tecnológico de Monterrey. (October 2014). Reporte Edu Trends: Aprendizaje invertido. [Edu Trends Report: Flipped Learning] Retrieved from: http://www.sitios.itesm.mx/webtools/Zs2Ps/roie/octubre14.pdf

Observatorio de Innovación Educativa del Tecnológico de Monterrey. (2017). Radar de Innovación Educativa 2017. Tecnológico de Monterrey. [Educational INnovation Radar 2017. Tecnológico de Monterrey] Retrieved from: https://observatorio.itesm.mx/radar-de-innovacin-educativa-2017

Pang, E., Wong, M., Leung, C. H., & Coombes, J. (2019). Competencies for fresh graduates' success at work: Perspectives of employers. *Industry and Higher Education, 33(1),* 55-65. https://doi.org/10.1177/0950422218792333

Representación de la UNESCO de Perú. (2016). *Innovación Educativa. Herramientas de apoyo para el trabajo docente*. Lima: CARTOLAN E.I.R.L. [Educational Innovation Support tools for teaching]

Rivadeneria, E. (2017). Competencias didácticas-pedagógicas del docente, en la transformación del estudiante universitario. [Teaching-pedagogical skills of the teacher, in the transformation of the university student]. Orbis. *Revista Científica de Ciencias Humanas, 13(37)*, 41-55. Retrieved from: http://www.redalyc.org/articulo.oa?id=70952383003

Roberts, D. (2018). Active Learning Precursors in Multidisciplinary Large Lectures: A Longitudinal Trial on the Effect of Imagery in Higher Education Lectures. *College Teaching, 66(4),* 199-210. https://doi.org/10.1080/87567555.2018.1486802

Sun, C., Shute, V. J., Stewart, A., Yonehiro, J., Duran, N., & D'Mello, S. (2020). Towards a generalized competency model of collaborative problem solving. *Computers & Education, 143*, 103672. https://doi.org/10.1016/j.compedu.2019.103672

Tan, J. P. L., Yang, S., Koh, E., & Jonathan, C. (2016, April). Fostering 21st century literacies through a collaborative critical reading and learning analytics environment: user-perceived benefits and problematics. In *Proceedings of the sixth international conference on learning analytics & knowledge (pp. 430-434)*. ACM. https://doi.org/10.1145/2883851.2883965

Unión Europea. (2017). *Marco Europeo para la competencia digital del profesorado (DigCompEdu)*. Retrieved from: https://n9.cl/2rdw

Universidad del Norte. (17 de julio de 2017). *Centros de apoyo a la docencia del país y el continente compartieron sus experiencias. [Teaching support centers in the country and the continent shared their experiences]* Retrieved from: https://n9.cl/rihav

Virtual Center for Education News [Centro Virtual de Noticias de la Educación] (May 5, 2014). *La calidad en la educación depende directamente de la calidad de los profesores, los educadores y los currículos, Clare Kosnik* [The quality of education depends directly on the quality of teachers, educators and curricula, Clare Kosnik]. Retrieved from http://www.mineducacion.gov.co/cvn/1665/w3-article-340967.html

Walker, A. E., Leary, H., Hmelo-Silver, C. E., & Ertmer, P. A. (Eds.). (2015). *Essential readings in problem-based learning.* Purdue University Press. Retrieved from: https://books.google.rs/books?hl=en&lr=&id=KhF-BgAAQBAJ&oi=fnd&pg=PR1&dq=Walker,+A.,+Leary,+H.,+Hmelo-+Silver,+C.,+%26+Ertmer,+P.+(Edits.).+(2015).+Essential+Readings+in+Problem-based+Learning.+West+Lafayete:+Purdue+University+Press.&ots=awo8oUhv_p&sig=0YQf0MDIQP3uCPPNlornPpSV3to&redir_esc=y#v=onepage&q&f=false

Zhang, I., & Wildemuth, B. (2017). *Qualitative Analysis of Content. En B. Wildemuth (Ed.),* Applications of Social Research Methods to Questions in Information and Library Science (Second ed.). Santa Bárbara, CA; Denver, CO: Libraries Unlimited.

PSYCHOLOGICAL AND PEDAGOGICAL BASIS OF INNOVATIVE METHODS IN HIGHER SCHOOL

Dr. Hrant Avanesyan, Head of the General Psychology Chair, Head of Laboratory of Experimental Psychology, Yerevan State University, Yerevan, Armenia
E-mail: avanesyanh@ysu.am

ARTICLE INFO

Book review
Received: November, 29.2019.
Revised: December, 02.2019.
Accepted: December, 04.2019.
doi: 10.5937/IJCRSEE1903087A

UDK
378.147

Review on the collective monograph of I.V. Abakumova, A.K. Belousova, E.S. Zorina, J. Maksimović, E.A. Nikolaeva, E.V. Nurmukhamedova, L. Stošić, O. D. Fedotova " Psychological and pedagogical basis of innovative methods in Higher school"

Scientific Editor - Academician of Russian Academy of Education, Dr. of Biological Science, Professor P.N. Ermakov
https://www.knorus.ru/catalog/psihologiya/518898-psihologo-pedagogicheskie-osnovy-innovacionnyh-metodov-obucheniya-v-vysshey-shkole-aspirantura-magistratura-monografiya/

The transition to new techno-economic paradigm causes intensive development of all branches of knowledge and spheres of life in modern society. This determines the necessity to find effective approaches to the implementation of new tasks in the field of training in the system of higher education, the development and application of new methods of education by teachers and psychologists, as well as complexes of individual technologies of educational activity used by the subject of educational practice.

The reviewed monograph is devoted to searching ways to improve teaching methods in modern higher school. This problem has gained new lines of relevance in connection with the change in the conceptual foundations of the education theory, according to which the didactic tools used in the system of higher education should be oriented towards the development of critical thinking, cognitive activity and students' autonomy, their mastery of self-control skills, the development of joint thinking activities, the dynamic use of information and communication methods. These aspects are fully reflected in the content of the monographic study, which is a joint work of representatives of Russian and foreign scientific schools. It should be noted that theoretical sections of the work are carried out at a high scientific and methodological level. They include analysis of modern research in the designated sphere and the main positions. Also they include author s' concepts developed by I.V. Abakumova, A.K. Belousova, L. Stošić, J. Maksimović, O.D. Fedotova. One of the undeniable advantages of the monograph is the international nature of the discussed scientific problems, implemented by the international authors including scientists of Macedonia, Russia, Serbia.

The monograph successfully combines theoretical and practically based vector of problem development. Readers not only get acquainted with modern methods of higher education, including new approaches to using the method of problem and situational analysis in the implementation of the competent model of higher education, adopted both in European countries and in the Russian system of higher education (Chapter 1), but also get a full understanding of the latest technologies of meaning making in the educational process (Chapter 2). The logic of discovery of the research design allows readers to get acquainted with the influence of innovative methods of training on the development of the individual innovative potential, peculiarities of development of joint thought activity as a psychological basis of interactive training methods (Chapter 3).

A distinctive feature of the monographic research is the presence of a reflexive component in the presentation of the main

Corresponding Author
Dr. Hrant Avanesyan, Head of the General Psychology Chair, Head of Laboratory of Experimental Psychology, Yerevan State University, Yerevan, Armenia
E-mail: avanesyanh@ysu.am

theoretical positions, which is reflected in the analysis of the peculiarities of teachers "perception of the introduction of the Internet into education, the study of students" attitude to the use of the latest ICT technologies in the course of education (Chapter 4). The monograph presents the results of foreign studies of the typology of university teachers and their reflexive practices as the basis of the principle of pedagogical pluralism, the requirements for the implementation of which are always observed in the countries of Europe (Chapter 5). The resource of technologies and methods of innovative training is presented in the work. It is emphasized that in order to be effective for the teacher in the modern educational environment, he has to acquire and restore the individual experience of the subject of active learning. In this sense, this section, devoted to the analysis of the role of reflexive practices in the activities of the teacher, which reveals the psycho-pedagogical grounds for improving pedagogical activities during the reflection of their own activities, becomes particularly relevant.

The structural composition of the monograph fully corresponds to its intention, according to which each chapter is a theoretical study of a certain thematic field in combination with practically based conclusions of didactic orientation. The content of the monograph, rich in drawings and tables, creates opportunities for the development of pedagogical reflection, allowing teachers and psychologists to improve their professional pedagogical activities, based on the acquired experience of evaluation, analytical and reflexive work. The monographic study characterizes the integrity and originality of the design, in which theoretical and empirical studies of the subject under consideration are harmoniously combined. The results are highly reliable, based on the availability of evidence that the results are based on experimental studies.

The monograph deals with the peculiarities of application, resources and risks of innovative training methods. The authors give interesting algorithms and principles of analysis of teacher's activity psychological content in conditions of modern educational practice.

The monograph "Psychological and Pedagogical Basis of Innovative Methods of Education in Higher School" is addressed to teachers of higher school, teachers, psychologists, and researchers, teachers of the system of additional vocational education, methodologists, and students and can be recommended for wide use in modern pedagogical practice.

However, both the subject matter and the way it is presented in this monograph have not exhausted their potential. It seems that the logical and meaningful emphasis were placed by the authors more on the organization of the professional activity of the teacher implementing the teaching function, rather than the reflexive activity of the student himself included in the educational process. Such a vector of consideration of issues opens up many efficient opportunities and in the future can create prospects for professional discussion. The opening of a new discussion space may be an occasion for further continuation of theoretical and empirical research by the international author's team. The results of the new research will allow readers to find themselves in a wide field of scientific positions and will contribute to further improvement of educational practice.

LIST OF REVIEWERS FOR YEAR 2019

International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE) would like to acknowledge the following reviewers for their assistance with peer review of manuscripts for issues in 2019. Their comments and suggestions were of great help to the authors in improving the quality of their papers. Each of the reviewers listed below returned at least one review for these issues.

Thank you Reviewers!

List of International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE) reviewers in 2019:

- Aleksandar Stojanović, University of Belgrade, Teacher Education Faculty, Serbia
- Aleksandra Karovska Ristovska, Institute of Special Education and Rehabilitation, Faculty of Philosophy, University Ss. Cyril and Methodius, Macedonia
- Ali Bawaneh, Imam Abdulrahman Bin Faisal University, Saudi Arabia
- Alla Belousova, Don State Technical University, Russia
- Amirreza Farahbood, Islamic Azad University Central Tehran Branch, Iran
- Aneta Barakoska, Ss. Cyril and Methodius University in Skopje, Faculty of Philosophy-Department of Pedagogy, Macedonia
- Anna Zhdanko, Don State Technical University, Russia
- Antoaneta Radočaj-Jerković, University of Josip Juraj Strossmayer in Osijek, Academy of Arts and Culture in Osijek, Croatia
- Bakaeva Aleksandrovna, Southern Federal University, Russia
- Belykh Tatiana Viktorovna, Saratov State University, Russia
- Biljana Novković Cvetković, Pedagogical faculty in Vranje, University of Niš, Serbia
- Borce Kostov, Faculty of Philosophy, University St. Cyril and Methodius, Skopje, Republic of Macedonia
- Claudio Gaete-Peralta, Universidad Bernardo O´Higgins, Chile
- Darko B Vukovic, National Research University - Higher School of Economics, ST Petersburg School of Economics and Management, Russia
- Derling Jose Mendoza, Universidad Tecnológica de Israel, Ecuador
- Elena Makarova, Don State Technical University, Rostov-on-Don, Russia
- Elizaveta Sagaidachnaya, Rostov State Economic University, Russia
- Ellenita Garcia Manalaysay, Bulacan State University, Philippines
- Evgeniya Topolska, St Cyril and St Methodius University of Veliko Turnovo-Vratsa Branch, Bulgaria
- Fashuyi Olugbenga, Federal University of Technology Akure Ondo State Nigeria, Nigeria
- Gautam Kumar Baboo, Birla Institute of Technology and Science, Pilani K.K. Birla Goa

Campus, India

• Gergana Dyankova, South-West University, Bulgaria

• Grozdanka Gojkov, Serbian Academy of Education Belgrade, Serbia

• Gunawan Gunawan, Universitas Mataram, Indonesia

• Hlystova Elena Viktorovna, Ural State Pedagogical University, Yekaterinburg, Rusia

• Huseyin Uzunboylu, Near East university, Turkey

• Inna Anatoljevna Achjamova, Ekaterinburg Academy of Contemporary Art, Municipal budgetary educational institution of higher education, Russia

• Irina Kibalchenko (Kibal'chenko), Federal State-Owned Educational Autonomy Establishment of Higher Education «Southern Federal University», Russia

• Jihad Jaafar Waham, Universiti Pendidikan Sultan Idris (UPSI), Kuala Lumpur, Malaysia

• Kashif Ishaq, University of the Punjab, Pakistan

• Katarina Zadnik, Academy of music, University of Ljubljana, Slovenia

• Lucky Nindi Marfu'I, University of Indraprasta PGRI, Indonesia

• Łukasz Tomczyk, Pedagogical University of Cracow, Poland

• Lyudmila Kruteleva, Academy of Psychology and Educational Sciences of Southern Federal University, Russia

• Maria Vyshkvyrkina, Southern Federal University, Russia

• Mariana Mateeva Petrova, St.Cyril and St.Methodius University of Veliko Tarnovo, Veliko Tarnovo, Bulgaria

• Marina Bogdanova, Institute of Philosophy Southern Federal University, Rusia

• Miomira M. Đurđanović, University of Niš, Faculty of Arts, Niš, Serbia

• Muhamad Imaduddin, Institut Agama Islam Negeri Kudus, Indonesia

• Muhammad Khalique, Mirpur University of Science and Technology (MUST), Mirpur, Pakistan

• Murat Tezer, Near East University, Turkey

• Nikolay Tsankov, South-West University, Bulgaria

• Nur Hidayah, Malang State University. Indonesia

• Oksana Barsukova, Southern Federal University, Russia

• Olga Fedotova, Don State Technical University, Russia

• Rail Shamionov, Saratov State University, Russia

• Sabina Vidulin, Academy of Music in Pula, University of Juraj Dobrila in Pula, Croatia

• Sana Lashari, Universiti Utara Malaysia | UUM, Malaysia

• Siniša Opić, Faculty of Teacher Education, University of Zagreb, Croatia

• Sofiq Dermendjieva, South-West University, Bulgaria

• Sonja Veličković, College for Preschool Teachers, Aleksinac, Serbia

Surya Faradiba, Universitas Islam Malang, Indonesia

• Svetlana Masalova, Institute of Improving Teachers' Qualification and Professional Retraining, Russia

• Tatiana Peredrienko, Federal State Autonomous Educational Institution of Higher Education "South Ural State University (national research university)", Russia

• Toni Maglica, Faculty of Humanities and Social Sciences, University of Split, Croatia

• Valentina Gulevska, Univerzitet „Sv. Kliment Ohridski" – Bitola, Pedagoški fakultet, Macedonia

• Valery Solovyev, Kazan Federal University, Russia

• Vlada Igorevna Pishchik, Don State Technical University (DSTU), Russia

• Vladimir Kosonogov, Southern Federal University, Russia

• Vladimir Radivojević, Regional Center of the Ministry of Defense Niš, Serbia

• Yulia Mochalova, Don State Technical University, Russia

• Yuliya Tushnova, Don State Technical University, Russia

• Zalik Nuryana, Universitas Ahmad Dahlan Yogyakarta Indonesia

• Zehra Ozcinar, Ataturk Teacher Training Academy, Turkey

• Zifa Temirgazina, Pavlodar State Pedagogical University, Kazakhstan

• Zoran Mastilo, University of East Sarajevo, Faculty of Business Economics Bijeljina, Republic of Srpska

AUTHORS` GUIDELINES

The journal publishes papers written by the members of the Association.

Annual membership fees:

- For residents (members of the Republic of Serbia) in the amount of 6.000,00 RSD
- For non-residents (members outside the Republic of Serbia) in the amount of 50 euros.

The journal do not charge authors an article processing charge (APC).

Types of contributions

Original Research, Review Articles, Studies and articles, Book Reviews, Case Studies and Monographic studies.

BEFORE YOU BEGIN

Authorship of the Paper

Authorship should be limited to those who have made a significant contribution to the conception, design, execution, or interpretation of the reported study. All those who have made significant contributions should be listed as co-authors. Where there are others who have participated in certain substantive aspects of the research project, they should be acknowledged or listed as contributors. The corresponding author should ensure that all appropriate co-authors and no inappropriate co-authors are included on the paper and that all co-authors have seen and approved the final version of the paper and have agreed to its submission for publication.

Authors of work

The author of the paper should be the person who made the greatest contribution to the creation of the work. All those who contributed to the making of the work should be listed in the paper and as co-authors. If there are other contributors who took part in the preparation of making the same work should be listed or admitted as associates.

Before accepting a final version of the paper for publication is necessary that the author and all co-authors approved the final version.

Changes in authorship

Privacy change in authorship relates to the addition, deletion, or rearrangement of author names in accepted version of the paper. An amendment to the data on the authors or co-authors is not possible after acceptance and publication in the online version.

If there is a need to amend the information on the authors, it is necessary to state the following:

1. The reason for the addition or deletion of author,
2. A written confirmation (send it scanned by e-mail) where all the authors agree that the notified operation is a named person is added or removed from the list of authors.
3. The editor will notify the author that needs to be added or removed from the list and will ask for his consent.

Requirements that are not sent by the respective author (corresponding author) will not be considered.

Originality and plagiarism

Authors are required to submit original written article. If other work necessary to work properly quote according to the instructions on the citation of work. If you use ideas of other authors require their written consent and using the same.

Plagiarism in all its forms constitutes unethical behavior and will be severely punished, and as such is unacceptable. The author or authors are required before reporting to work in the journal checking their work through some of the programs for testing against plagiarism. The Editorial Board reserves the right to verify each work through the test of plagiarism and if the same occurs to notify the author.

Disclosure and conflicts of interest

Disclosure and conflicts of interest can be multiple. If the author or institution where the author has a financial assistance in project design or research is needed to adequately cover letter to inform the editorial and the public. Publication in journal person or institution that is financially supported by the making of the work or project is the best way to protect against conflicts of interest.

At the end of the text, under a subheading '' Conflicts of interest '', all authors must disclose any actual or potential conflict of interest including any financial (direct of indirect), personal or other relationships with other people or organizations within three years from the commencement of any work.

Fundamental errors in published work

If the author detects an error in the published paper is obliged to instantly inform journal editors or publishers and that as soon as possible the same document. The author shall, in the event of an error, to cooperate with the editorial board to remove the same.

Copyright Notice

The Author(s) warrant that their manuscript is their original work that has not been published before; that it is not under consideration for publication elsewhere; and that its publication has been approved by all co-authors, if any, as well as tacitly or explicitly by the responsible authorities at the institution where the work was carried out. The Author(s) affirm that the article contains no unfounded or unlawful statements and does not violate the rights of others. If copyrighted works are included, the Author(s) bear responsibility to obtain written permission from the copyright owners. The Corresponding author, as the signing author, warrants that he/she has full power to make this grant on behalf of the Author(s).

By signing this agreement, the Corresponding author grants to the Publisher the following rights to the Manuscript, including any supplemental material, and any parts, extracts or elements thereof:

- the right to reproduce and distribute the Manuscript in printed form, including print-on-demand;
- the right to produce prepublications, reprints, and special editions of the Manuscript;
- the right to translate the Manuscript into other languages;
- the right to reproduce the Manuscript using photomechanical or similar means including, but not limited to photocopy, and the right to distribute these reproductions;
- the right to reproduce and distribute the Manuscript electronically or optically on any and all data carriers or storage media – especially in machine readable/digitalized form on data carriers such as hard drive, CD-Rom, DVD, Blu-ray Disc (BD), Mini-Disk, data tape – and the right to reproduce and distribute the Article via these data carriers;
- the right to store the Manuscript in databases, including online databases, and the right of transmission of the Manuscript in all technical systems and modes;
- the right to make the Manuscript available to the public or to closed user groups on individual demand, for use on monitors or other readers (including e-books), and in printable form for the user, either via the internet, other online services, or via internal or external networks.

Articles published in the Journal are Open-Access articles distributed under a Creative Commons Attribution-ShareAlike 4.0 International License.

The Journal allows Author(s) to deposit Author's Post-print (accepted version) and Publisher's version/PDF in an institutional repository and non-commercial subject-based repositories, such as PubMed Central, Europe PMC, arXiv and other repositories, or to publish it on Author's personal website and departmental website (including social networking sites, such as ResearchGate, Academia.edu, etc.), at any time after publication. Publisher copyright and source must be acknowledged and a link must be made to the article's DOI.

Upon receiving the proofs, the Author(s) agree to promptly check the proofs carefully, correct any typographical errors, and authorize the publication of the corrected proofs.

The Corresponding author agrees to inform his/her co-authors, of any of the above terms.

The journal allows readers to read, download, copy, distribute, print, search, or link to the full texts of its articles and allow readers to use them for any other lawful purpose.

Copyright Agreement

For open access articles, permitted third party (re)use is defined by the following Creative Commons user licenses:

Creative Commons Attribution (CC-BY)

Lets others distribute and copy the article, create extracts, abstracts, and other revised versions, adaptations or derivative works of or from an article (such as a translation), include in a collective work (such as an anthology), text or data mine the article, even for commercial purposes, as long as they credit the author(s), do not represent the author as endorsing their adaptation of the article, and do not modify the article in such a way as to damage the author's honor or reputation.

Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND)

For non-commercial purposes, lets others distribute and copy the article, and to include in a collective work (such as an anthology), as long as they credit the author(s) and provided they do not alter or modify the article.

Language (usage and editing services)

Please write in good English (American or British usage is accepted, but not a mixture of these). For non-native English speakers, and perhaps even for some native English speakers, the grammar, spelling, usage, and punctuation of the text are very important for an effective presentation. Hence, manuscripts are expected to be written in a clear, cogent, and readily understandable by an international readership. To avoid unnecessary errors, you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.

Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the English Language Editing service available from EDANZ -

http://www.edanzediting.com/services/english_editing

Submission declaration and verification

Submit your article

Please submit your article via

http://ijcrsee.com/index.php/ijcrsee/about/submissions#onlineSubmissions

NEW SUBMISSIONS

Manuscripts must submit only online, proceeds are totally online and you will be guided stepwise through the creation and uploading of your files. Electronic submission reduces the editorial processing and reviewing times and reduces the time of submission to publication.

You have to use IJCRSEE template to prepare your article and this version upload via

http://ijcrsee.com/index.php/ijcrsee/about/submissions#onlineSubmissions

Formatting requirements

The prepared article should be formatted with IJCRSEE template. There are some parameters for authors.

If your article includes any Videos and/or other Supplementary material, this should be included in your initial submission for peer review purposes.

Divide the article into clearly defined sections.

Structure of Manuscripts

Title Page

The title page should include:

The name(s) of the author(s)

A concise and informative title

The affiliation(s) and address(es) of the author(s)
The e-mail address of the corresponding author.

Abstract

The abstract should contain a maximum of 250 words. The abstracts should avoid any abbreviations and mathematical formulas.

Keywords should include 4-6 keywords.

Text Formatting

Manuscripts should be submitted in Word, A4, Times New Roman, 10-point for abstract and keywords and 12-points for text.

A complete manuscript falls need to be maximum 8,000 words excluding references, tables, and figures. Depending on the research and work purposes, the editor decides the acceptance of a larger number of pages.

For numerations of pages use the automatic page numbering function.

In the text for emphasis use italics.

The use of abbreviations should be avoided. If using the first Abbreviations should be used throughout the text the same.

For headings use maximum three levels.

Footnotes should be avoided. If used, footnotes should only contain additional text (comment), and not information about sources used.

Acknowledgments should be placed in a separate section before the reference list.

Introduction – State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

Materials and Methods – Provide sufficient detail to allow the work to be reproduced. Methods already published should be indicated by a reference: only relevant modifications should be described.

Results – Results should be clear and concise.

Discussions – This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

Conclusions - The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.

Appendices - If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

Acknowledgments - Collate acknowledgments in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proofreading the article, etc.).

Reference Style– All manuscripts should be formatted using the American Psychological Association (APA) citation style, which is used primarily in the social sciences. For additional examples, consult the most recent edition of the Publication Manual of the American Psychological Association. You are referred to the Publication Manual of the American Psychological Association, Sixth Edition, ISBN 978-1-4338-0561-5, copies of which may be ordered from http://books.apa.org/books.cfm?id=4200067 or APA Order Dept., P.O.B. 2710, Hyattsville, MD 20784, USA or APA, 3 Henrietta Street, London, WC3E 8LU, UK.

Use of DOI is highly encouraged.

CITING REFERENCES IN TEXT

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Citation of a reference as 'in press' implies that the item has been accepted for publication.

• If an one author is sufficient to cite only the year, but not the page if you do not quote the text directly, or do not mention the fact that needs to be linked to the page.

Busk (2014) compared reaction times ...

In a recent study of reaction times (Busk, 2014) ... (ibid, str.105).

When citing in plain text, the author's name and year of release of work separated by commas.

If we are in the plain text provide the name and year of the author, there is no need to give the same information again in parentheses.

In 2012 Stosic compared reaction times ... (ibid, page 102).

• When a work has two authors, always indicate both names and year and between surnames of the authors specify the conjunction &.

Nightlinger and Littlewood (2003) demonstrated ...

As has been shown (Busk & Serlin, 1993) ...

• When in plain text quoting the names of three, four or five authors, first make sure to include all the names, and text enough to write only the first and add '' and associates''.

First time: Yan, G., Tian, H., Bai, X. & Rayner, K. (2006). found ...

Second time: Yan, G.et al. (2006) found ... (ibid, p. 12)

• When a work has no author's name, whether it's because it is issued by the agency, organization, or governmental institutions, rather than the names of authors mention the name of the institution or organization that has signed the paper, and if a name is long, just so many words or abbreviation as needed to locate the source in the list of references.

First time: (National Institute of Mental Health [NIMH], 1999) ...

Second time: (NIMH, 1999) ...

• When you do not have the names of institutions or authors, when the work is anonymous, then mention only the first few words of the title, and we quote them in parentheses under the quotation marks in plain text in italics.

These result present (‘’ Study Finds, ‘’ 2002) ...

The book College Bound Seniors (2003) ...

When work in the header nominated as anonymous, then it in the text under the anonymous quote and cite year, in English (Anonymous, 2011).

• If there are two references to the same author's last name, then be sure to mention when citing the initials to avoid unnecessary search in a list of references.

JM Goldberg and Neff (1961) and ME Goldberg and Wurtz (1972) studied ...

• If the same author or the same authors cite two or more references, then in brackets do not repeat names but just add a year for the next release.

Past research (Edeline & Weinberger, 1991, 1993) ...

Past research (Gogel, 1984, 1990) ...

• When the same author we have more work during one year, then these sources labeled the letters of the alphabet a, b, c and so on.

Several studies (Gogel, 1984, 1990a, 1990b) ...

• When several authors cite in the same bracket, or when we point to the consent of the author, references detach semicolon and listed them in alphabetical order.

Several studies (Balda 1980, Kamil 1988, Pepperberg & Funk, 1990) ...

• If with some of the references cite a source that confirms what is specific to this reference, then the source listed below see also, but that goes with the source of reference, but not alphabetically.

Several studies (Minor 2001; see also Adams, 1999; Storandt, 1997) ...

• When quoting hearsay, cite the author's name and year of the original work, followed by a semicolon and then cited code, then last name, year and foreign labor from which he quoted original work.

The first definition of intrinsic motivation gave Decy (1975; see Suzić 2005, p. 108) ...

• If we know the year of the first publication of the work, then it is to be connected age translation by first listed year of first publication, a slash and then year translation.

(James, 1890/1983)

• For an Internet source that does not have a bookmarked Web page, use a pair of ¶ and paragraph number on the page where it was published.

(Myers, 2000, ¶ 5)

• Personal communication or publicly spoken words in a lecture to quote only in plain text, but not in the list of references, but does mention the date of actual communication.

Decy (personal communication, April 18, 2001) ...

REFERENCES

• Form Guidance papers in the journal is as follows:

The author's name [comma], initial / names [point], [open small brackets] year of publication [close little brackets] [point] title of the paper [point], the name of the magazine - in italics [comma] the number or volume - in italics [comma] page starting work [line] Page completing work [point].

Dennis, TA, Cole, PM, Wiggins, CN, Cohen, LH & Zalewsky, M. (2009). The functional organization of preschool-age children's emotion expressions and actions in challenging situations. *Emotion, 9,* 520-530.

• Form quoting the works of authors of books is as follows:

The author's name [comma], initial / names [point], [open small brackets] year of publication [close little brackets] [point] title deeds - in italics [point], the city (and state) [two counts], the publisher [Point].

Hirsch, Jr., E. D. (1996). *The schools we need and why we do not have them.* New York: Doubleday.

• When you mention a paper published in a journal or as part of a book as a chapter, then applies the following form:

The author's name [comma], initial / names [point], [open small brackets] year of publication [close little brackets] [point] title of the paper [point], In Proceedings ... (note that the work was published in a journal or book ...) The name of the publisher [open small brackets] Issue. (Note that this is a publisher) [Close little brackets] [comma] title of the collection - in italics [open small brackets] page starting work [line] Page completing work [point], the city (and state) [two counts], publisher [point].

Barrett, KC, & Campos, JJ (1987). Perspectives on emotional development: II. A functionalist approaches to emotions. In Osofsky JD (Ed.), *Handbook of Infant Development* (2nd ed., Pp. 555-578). Oxford, England: Wiley.

• If seven or more authors, then we will list the names of the six authors, and the seventh and the rest fall into the category of '' and associates ''.

Adam, JJ, Paas, F. Teeken, JC van Loon, EM, Van Boxtel, MPJ, Houx, PJ, et al. (1998). Effects of age on performance and a finger-precuing task. J*ournal of Experimental Psychology: Human Perception and Performance, 24,* pp. 870-883.

Second and last author in a list of references are always stating afterward conjunctions & English.

• In magazines published articles cite the following form:

the author's name [comma], initial / names [point], [open small brackets] day, month and year of publication [close little brackets] and the title [point], the name of the magazine or newspaper - italics [comma], number of journals or Newspapers - italics [comma], page beginning of the text [line] Page completing the text [point].

Henry, W. A., III. (1990, April 9). Beyond the Melting Pot. Time, 135, 28-31.

• When we need to with the title of the article mention what kind of material it is then enclosed in square brackets after the title of the paper is printed by it is a brochure, video recording and the like.

Research and Training Center on Independent Living. (1993). Guidelines for reporting and writing about people with disabilities (4th ed.) [Brochure]. Lawrence, KS: Author.

• The work of famous authors downloaded electronically applies the following form:

The author's name [comma], initial / names [point], [open small brackets] year of publication [close little brackets] [point] title of the paper [point], an indication of what kind of material is in square brackets, taken (note that work will take) the day, month and year, with (internet address).

Schwarzer, R. (1989). Statistics software for meta-analysis [Computer software and manual]. Retrieved March 23, 2001, http://www.yorku.ca/faculty/academic/schwarze/meta_e.htm

• When the list reference is made to the work that is being prepared for the press, after the authors' names, in parentheses, listed in the press in English.

Zuckerman, M. Kieffer, SC (in press). Race differences in faceism: Does facial prominence imply dominance? Journal of Personality and Social Psychology.

• When the list of references cites a newspaper article without the author prints the name of the article, then the time of publication, then the title and number - in italics, and at the end of the page on which the article was published. If the title is long, we can shorten the optimum number of words by taking the first few words.

The new health-care lexicon. (1983, August / September). Copy Editor, 4, 1-2.

• If within the journal as publisher publishes a special issue as a monograph, it is necessary after heading indicate that it is a monograph.

Ganster, DC, Schaubroeck, J. Sime, WE, & Myers, BT (1991). The nomological validity of the Type A personality among employed adults [Monograph]. *Journal of Applied Psychology, 76,* 143-168.

• When an abstract or summary of the quote as the original source, after the title should be in parentheses to indicate that it is abstract.

Woolf, NJ, Young, SL, Famselow, MS, & Butcher, LL (1991). Map-2 expression in cholinoceptive pyramidal cells of rodent cortex and hippocampus is altered by Pavlovian conditioning [Abstract]. *Society for Neuroscience Abstracts, 17*, 480 harvesters.

• Titles that are not in English, and we want them to be published in the journal in English, listed in their native language, and then in the square brackets give the title translation into English. In addition to the title, everything else remains the mother tongue.

Ising, M. (2000). Intensitätsabhängigkeit evozierter Potenzial their EEG: Sindh impulsive persons Augmenter stage Reducer? [Intensuty dependence and event related EEG potentials: Are impulsive individuals augmenters or reducers?]. *Zeitschrift für Différentiel und diagnostisch Psychology, 21,* 208-217.

• In the list of literature translated work following a text that we have a year of the original edition listed in parentheses at the end behind the publisher. When we quote in plain text, year of first publication and translation writing along with a slash between (eg. Laplace, 1814/1951).

Laplace, P. S. (1951). A philosophical essay on probabilities (FW Troscott & FL Emory, Trans.). New York: Dover. (Original work published 1814)

• When the list of references cites a paper published in the Proceedings of the translated, italics will print the name of the collection at the end to add when it published the original.

Freud, S. (1961). The ego and the id. In J. Strachey (Ed. & Trans.), The standard edition of the complete psychological works of Sigmund Freud (Vol. 19, pp. 3-66). London: Hogarth Press. (Original work published 1923).

• When you cite articles published on the university or one of the official institutions, universities, publishers listed as the first name of the university and then university.

Broadhurst, RG, & Maller, RA (1991). Sex offending and recidivism (Tech. Rep. No. 3). Nedlands: University of Western Australia, Crime Research Center.

• When the list of sources cites a report of an organization or institution that has no author, it is best to nominate as the author of this organization, which is also the publisher.

Employee Benefit Research Institute. (1992, February). Sources of health insurance and characteristics of the uninsured (Issue Brief No. 123). Washington, DC: Author.

• When the work was published on the Internet as a photocopy, it should cite the original source noting that this is the electronic version.

Vandenbos, G. Knapp, S., & Doe, J. (2001). The role of reference elements in the selection of resources by psychology undergraduates [Electronic version]. *Journal of Bibliographic Research, 5*, 117-123.

• If you download from the Internet work that you believe is different from the original, do not copy or no numbered pages, then at the end indicate the date of downloads and web address.

Vandenbos, G. Knapp, S., & Doe, J. (2001). The role of reference elements in the selection of resources by psychology undergraduates [Electronic version]. *Journal of Bibliographic Research, 5,* 117-123. Retrieved October 13, 2001, from http://jbr.org/articles.html

• When you download from the Internet a document which has no date or author, then the document name takes the place of the author or the first place.

8th GVU's WWW User Survey. (Od). Retrieved August 8, 2000, from http://www.cc.gatech.edu/gvu/user_surveys/survey-1997-10/

• Material from the symposium or a scientific paper which was only exposed, but not published, listed with the note on which the scientific or professional meeting is material exposed. If the author has presented on the site, it is desirable to name and web page.

Cuter, LD, Frölich, B., & Hanrahan, P. (1997, January 16). Twohanded direct manipulation on the responsive workbench. Paper presented at the 1997 Symposium on Interactive 3D Graphics. Abstract retrieved June 12, 2000, from http://www.graphics.standard.edu/papers/twohanded/

• Computer software listed noting computer software. Name of the software we write italics.

Miller, M. E. (1993). The Interactive Tester (Version 4.0) [Computer software]. Weastminster, CA: Psytek Sesvice.

• Data downloaded from the website of the government or other official organization listed noting data file. The filename of the data listed in italics.

Department of Health and Human Services, National Center for Health Statistics. (1991). National Health Provider Inventory: Home health agencies and hospices, 1991. [Data file]. Available from the National Technical Information Service Web site, http://www.ntis.gov

Standards take according to Suzic, N. (2010). *Pravila pisanja naučnog rada APA i drugi standardi* [Rules scientific APA work and other standards]. XBS Banja Luka.

Reference management software

The journal has a standard template – IJCRSEE template. To cite reference, it is the easiest way to use some management software like:

Mendeley (http://www.mendeley.com/features/reference-manager)
EndNote (http://www.endnote.com/support/enstyles.asp) and
Reference Manager (http://refman.com/support/rmstyles.asp).

Above management software have plug-ins to word processing where authors only need to select the appropriate journal template when preparing their article and the list of references and citations to these will be formatted according to the journal style as described in this Guide. If you cannot find an available template, see the list of sample references and citations provided in this Guide to help you format these according to the journal style.

After acceptance

Online proof correction

Corresponding authors will receive an e-mail with a link to our online proofing system, where have to make prof own article. The final version is created in PDF and authors have to accept final version or to immediately report the error. We will do everything possible to get your article published quickly and accurately. Please check carefully before replying, as the inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility.

https://pubpeer.com/Check the comments on published and withdrawn works.

All the articles in this journal have been peer reviewed. Nonetheless, editors and organizers are not responsible for the content shown in this publication.

Submission Preparation Checklist

As part of the submission process, authors are required to check off their submission's compliance with all of the following items, and submissions may be returned to authors that do not adhere to these guidelines.

The submission has not been previously published, nor is it before another journal for consideration (or an explanation has been provided in Comments to the Editor).

The submission file is in OpenOffice, Microsoft Word, RTF, or WordPerfect document file format.

Where available, URLs for the references have been provided.

The text is single-spaced; uses a 12-point font; employs italics, rather than underlining (except with URL addresses); and all illustrations, figures, and tables are placed within the text at the appropriate points, rather than at the end.

The text adheres to the stylistic and bibliographic requirements outlined in the Author Guidelines, which is found in About the Journal.

If submitting to a peer-reviewed section of the journal, the instructions in Ensuring a Blind Review have been followed.

Have checked paper for possible accidental plagiarism. Some plagiarism checker websites includes: www.grammarly.com,www.plagtracker.com, http://www.ithenticate.com/ or www.duplichecker.com

To verify originality, your article may be checked by the originality detection service CrossCheck.

PARTNERS AND SPONSORS

Don State Technical University - DSTU, Rostov on Don, Russia
https://donstu.ru/

Southern Federal University (Russia, Rostov-on-Don)
Academy of Psychology and Pedagogy
Rostov Institute of Further Training and Retraining of Educators (Russia, Rostov-on-Don)
http://sfedu.ru/

Moscow State University of Psychology and education
faculty of legal and forensic psychology
http://jp.mgppu.ru/en

The Faculty of Philosophy of Skopje, University St. Cyril and Methodius, Macedonia
http://fzf.ukim.edu.mk/index.php/en/

University “St. Kliment Ohridski”, Faculty of Education in Bitola, Macedonia
http://www.pfbt.uklo.edu.mk/

Polskie Towarzystwo Psychologii Klinicznej

Polish Society of Clinical Psychology

http://ptpk.org.pl/

PsyJournals.ru
russian psychological issues

Psychology and Law
http://psyjournals.ru/en/psyandlaw/

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

37

INTERNATIONAL Journal of Cognitive Research in Science, Engineering and Education / editor in chief Lazar Stošić. - Vol. 1, iss. 1 (June 2013)- . - Vranje : The Association for the Development of Science, Engineering and Education, 2013- (Vranje : Aurora). - 30 cm

Tri puta godišnje. - Drugo izdanje na drugom medijumu: International Journal of Cognitive Research in Science, Engineering and Education (Online) = ISSN 2334-8496
ISSN 2334-847X = International Journal of Cognitive Research in Science, Engineering and Education
COBISS.SR-ID 199383052