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Editor’s Preface

The third number of The New Educational Review in 2019 is the fifty-seventh issue of our journal since its foundation in 2003. In this issue, there are papers from: Austria, the Czech Republic, Hungary, Indonesia, Jordan, Poland, Russia, Serbia, the Slovak Republic, Slovenia, South Korea, Sweden, Ukraine, and USA because our journal is open for presentation of scientific papers from all over the world.

In the present issue the International Editors’ Board have proposed the following subject sessions: Social Pedagogy, General Didactics, Pedeutology, Special Pedagogy, and Book Review.

In the subject session “Social Pedagogy” we publish seven articles. The aim of the paper by Joanna Marszałek-Kawa and Danuta Plecka is to identify relations between holding a university degree and political subjectivity. The study conducted by Katarzyna Markiewicz, Sara Filipiak and Joseph R. Ferrari aims at discovering whether gender, age, and different cultural background maybe associated with procrastination. Therefore, procrastination tendencies by students of Polish nationality residing in Poland with Polish students living in Austria are compared. The research conducted by Angela Almašiová, Katarína Kohútová and Alina Budniak deals with burnout syndrome among students in the context of selected demographic characteristics of respondents, frequented level of study, satisfaction with the study, frequented study program, study performance and vision for their future careers. The study carried out by Chairy and his co-workers investigates the impact of the Green image on university reputation and student satisfaction through multiple regression analysis. The theoretical and methodological framework of the research described by Ewa Ogrodzka-Mazur and Petro Saukh is indicated by basic national categories – culture, value and valuing orientations. The research prepared by A. Deiry, N. Shokah and A. Al-Batayneh aims to measure and explore the ability of physical education teachers to apply newly developed curricula for the knowledge economy in Irbid Governorate schools in...
Jordan. In their contribution Saša Jazbec and Brigita Kacjan present an app that can be regarded as a universal tool for fostering multilingualism and explaining it from the viewpoint of parents, since they are an important, but often ignored, aspect of multilingual education.

In the subject session “General Didactics” we publish seven articles. The purpose of the paper by Wojciech Kojs is to present the results of analyses and thoughts related to the determination of the role of educational acts (e.g. skills, attitudes, beliefs, aspirations), related in particular to cooperation and mutual interaction. The contribution by Milena Lipnická, Simoneta Babiaková and Mariana Cabanová presents partial results of research aimed to find students’ evaluative opinions on their knowledge and experience for development of children’s language and literacy in kindergartens and children’s school clubs and to point out differences in self-evaluation, depending on the length and form of study. The aim of the investigation conducted by Marija Bošnjak Stepanović and her co-workers is to determine the presence of misconceptions in understanding the physical properties of water and to identify the most common ones. Hyoung-Jin Moon and Jong-ho Nam explore the degree of Confucian awareness among Korean university students, and develop more effective education measures. In their article Nurcholif Diah Sri Lestari, Dwi Juniati and St. Suwarsono explore the role of knowledge of content and students of a prospective mathematics teacher in designing learning that integrates mathematical literacy into mathematics teaching and learning. In their report Erich Petlák and Hans Schachl briefly describe the existing state and tendencies in teacher training for primary school in Slovakia. In the article by Irina A. Shcherbakova and Marina S. Ilina they present features in the developing of foreign language communicative competence using interactive teaching methods.

In the subject session “Pedeutology” we publish three articles. The study conducted by Ketut Budiastra, Nia Erlina and Iwan Wicaksono aims to analyse the effectiveness of Video-Based Interaction in Teacher Working Group forums to improve teachers’ professionalism in science learning in elementary schools in Indonesia. The purpose of the study conducted by Badrun Kartowagiran and his co-workers is to show the effectiveness of the AA “4C” model in increasing teachers’ abilities in Indonesia. Kamila Majewska in her paper describes research which assesses the degree of preparation, methods of use, and the ability to create online educational resources by Polish teachers of early school education.

In the subject session “Special Pedagogy” we publish an article by Lotta Anderson and Daniel Östlund, the aim of which is to analyse what characterizes the work of special needs teachers and what collaborations they engage in schools for students with intellectual disability.
In the subject session “Book Review” we include a review prepared by Jakub Adamczewski of the monography by Marek Kwiek, published by Routledge in New York this year, entitled “Changing European Academics. A comparative study of social stratification, work patterns and research productivity”.

We hope that this edition, like previous ones, will encourage new readers not only from Central European countries to participate in an open international discussion. On behalf of the International Editors’ Board I would like to invite representatives of different pedagogical sub-disciplines and related sciences to publish their texts in The New Educational Review, following the formal and essential requirements found on our website: www.educationalrev.us.edu.pl – For Authors.
The New Educational Review

Social Pedagogy
Abstract
It is obvious that the educational system shapes the skill of critical thinking, also in the sphere of the assessment of political phenomena. The educational background of a person determines the kind of decisions he or she makes. These decisions refer to political activity both defined as interest in political issues and manifested in the form of active political participation. The aim of this paper is to identify relations between holding a university degree and political subjectivity. The study, conducted with the use of a survey questionnaire, involved students from the University of Zielona Góra and from the Nicolaus Copernicus University in Toruń.

Keywords: education, political subjectivity, democracy

Among different concepts of democracy, it is those, which stress citizens’ involvement as the prerequisite for the development and proper functioning of a regime that are of prime importance (Diamond, 2002, p. 213; Thomassen, 2007, pp. 418–434; Dahl 1957, pp. 201–215; Dahl 1998, pp. 217; Sartori, 1998, pp. 58–298; Morison, 2007, pp. 134–156). There may be different types of citizens’ political activity: engagement, and passive and active participation. The broadest notion concerning political activity is an individual’s interest in politics which takes different forms (e.g. attitudes to political values, manifesting one’s political views, etc.). Participation refers to people's activities undertaken for the sake of
changing or continuing policy, thus determining their attitude towards it (Kruijke-meier, van Noort, Vliegenthart, de Vreese, 2014, pp. 903–920; Sotwin, 2003, pp. 12–23; Turska-Kawa, 2011, pp. 267–280; Wolfson, n.d.). Political participation and involvement may assume different forms (symbolic vs. real, or idealistic vs. realistic), but they are based on the same factor, referred to as political subjectivity.

The category of subjectivity was borrowed from social psychology. As Wiesława Sotwin points out, subjectivity can be of an external or internal nature, with both kinds mutually excluding each other. They “represent two basic aspects of subjectivity, i.e. the possibility of being the driving force for the external environment and for oneself” (Sotwin, 2003, p. 14–16). Both phenomena are a reflection of the state of mind. Subjectivity should be viewed on a few levels and with reference to various situations. According to Milton Rokeach, personality is determined by a system of values (Rokeach, 1973, pp. 14–16), which do not have to be mutually contradictory as they are based on logic. Their primary task is to influence the psychological sphere of an individual. Rokeach claims that one of the fundamental dimensions of the analysis of beliefs is the criterion of openness-closedness. Their bases include sources of information, its relevance and irrelevance, and an individual’s ability to select it. As Sotwin points out “the more closed the mind is, the more difficult it is for it to distinguish between information and its origin, and to evaluate them separately. A sense of danger and fear are the main reasons for which the mind closes” (Sotwin, 2003, p. 48–53). This determines authoritarian attitudes consisting in a belief that one has to subject to authorities, who constitute quite an idealized picture. It is also connected with the conviction that one cannot make decisions concerning his or her life and has no influence, whatsoever, on the surrounding reality. Therefore, the subjectivity of an individual becomes shaken as a consequence of the external influence of the society as a whole, or its particular groups (for example, a family). What is the opposite of an authoritarian attitude is people’s conviction that they can both decide on their faith and have an impact on the surrounding reality. Thus, subjectivity emerges, following the comparison of intentions with the accomplished targets.

This also concerns political subjectivity. Krzysztof Korzeniowski listed four models of political subjectivity. The first of them occurs in the dimension of effectiveness vs. helplessness, i.e. individuals’ belief that they are able to influence the reality vs. the conviction that they cannot do it. The second dimension refers to sense/nonsense, i.e. the belief that our actions are meaningful or are pointless. The third sphere concerns a sense of enomy vs. anomy, i.e. the assumption that people have/do not have the capability to assess the reality. The final domain involves a sense of identification vs. alienation, i.e. a sense of belonging to and integration
with the system vs. a sense of alienation and lack of identification with the system (Korzeniowski, 1993, pp. 155–192).

The subjectivity of an individual is undoubtedly affected by one's upbringing, but also by education at all levels – starting from nursery school to the university. The educational system allows people to develop the skill of critical thinking. This also concerns the political phenomena. As a result, an individual's decisions concerning the sphere of political activity are confined to taking an interest in politics or to political participation. One of the primary tasks of the educational process is to take care of the comprehensive growth of an individual, taking into consideration the necessity of developing personal talents. This poses a number of challenges for the system of schools and higher education, which may result in the fulfilment of some very important social functions (Brennan, 2008, pp. 381–393; Luvalo, 2014, pp. 1206–1212; Cortese, 2003, pp. 15–22). The requirements for the individual stages of education assume that each of them should support an individual in the increasingly comprehensive growth of personality and a sense of subjectivity. It contributes not only to the development of an individual, but also of human capital, which is necessary in the process of economic growth and for the stabilization of democracy as a political regime. In turn, education which does not favour the development of subjectivity, including the political one, is conducive to the intensification of populist and authoritarian attitudes.

The research problem and methodology

The aim of the study presented below is to identify relations between higher education and political subjectivity. A survey questionnaire is the best choice in the case of examining such specific phenomena as relations between one’s education and his or her sense of agency. It makes it possible to present a large catalogue of questions concerning the issue.

The study was conducted between October 2018 and March 2019. Its participants included students of the Nicolaus Copernicus University in Toruń and the University of Zielona Góra. There were a total of 129 respondents: 47 people from the University of Zielona Góra and 82 from the Nicolaus Copernicus University. The main research problem concerned the relationship between one’s level of education and a sense of political subjectivity.
Research findings

The group of questions regarding education included those about the reason for studying (three answers could be ticked). The respondents most frequently stressed their willingness to become a highly qualified specialist, the need to raise their social status and to ensure permanent income. Leading an interesting life as a result of obtaining a university degree was also a popular answer.

Table 1. Why did you decide to study.

<table>
<thead>
<tr>
<th>Reasons</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I wanted to become a highly qualified specialist in the chosen field.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.27</td>
<td>.446</td>
</tr>
<tr>
<td>I wanted to raise my social status, have a more prestigious position in the society.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.34</td>
<td>.476</td>
</tr>
<tr>
<td>I wanted to secure myself a steady income in future.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.36</td>
<td>.483</td>
</tr>
<tr>
<td>I wanted to prolong my school years (without having to work, with no obligations, etc.).</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.13</td>
<td>.340</td>
</tr>
<tr>
<td>I believed that a university diploma (regardless of the kind of studies) would be useful in life.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.31</td>
<td>.464</td>
</tr>
<tr>
<td>I wanted to meet my life partner here.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.04</td>
<td>.194</td>
</tr>
<tr>
<td>My parents insisted I take up studies.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.08</td>
<td>.268</td>
</tr>
<tr>
<td>I thought that a university degree would allow me to lead an interesting life now and in future.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.38</td>
<td>.487</td>
</tr>
<tr>
<td>I believed that owing to studies I would become a well-educated and well-mannered person.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.19</td>
<td>.397</td>
</tr>
<tr>
<td>I wanted to continue a family tradition and follow in my parents’ (or one of the parents’) footsteps regarding the choice of profession.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.02</td>
<td>.151</td>
</tr>
<tr>
<td>I wanted to live and study in a big city.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.12</td>
<td>.331</td>
</tr>
<tr>
<td>I decided to study because almost everyone does so nowadays.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.09</td>
<td>.292</td>
</tr>
<tr>
<td>I wanted to experience students’ life, have fun and entertain myself.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.17</td>
<td>.378</td>
</tr>
<tr>
<td>It is difficult to say.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.03</td>
<td>.174</td>
</tr>
</tbody>
</table>

Valid N (excluding with observations) 129
From the perspective of our study, it was important to ask students about the reasons for choosing the field of study. The most frequent answer was that after graduation, they could work in a socially useful profession (sociology and internal security).

**Table 2. Why did you choose this field of study?**

*Based on the authors’ own research*

<table>
<thead>
<tr>
<th>Reason</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am interested in this field of knowledge.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.60</td>
<td>.492</td>
</tr>
<tr>
<td>I was not admitted to my dreamed field of study.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.06</td>
<td>.242</td>
</tr>
<tr>
<td>It was easy to get in this field of study.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.15</td>
<td>.356</td>
</tr>
<tr>
<td>There are good job prospects after completing these studies.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.29</td>
<td>.454</td>
</tr>
<tr>
<td>My parents persuaded me.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.03</td>
<td>.174</td>
</tr>
<tr>
<td>My friends/colleagues chose this field of study.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.06</td>
<td>.242</td>
</tr>
<tr>
<td>It is a prestigious field of study.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.09</td>
<td>.292</td>
</tr>
<tr>
<td>This is an easy subject, there is not a lot to learn, not much effort is needed.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.16</td>
<td>.363</td>
</tr>
<tr>
<td>It is a family tradition.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.02</td>
<td>.124</td>
</tr>
<tr>
<td>After completing my studies, I will be able to work in a socially useful job.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.47</td>
<td>.501</td>
</tr>
<tr>
<td>Owing to obtaining a degree in this field of study, I will be able to travel all around the world.</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.12</td>
<td>.331</td>
</tr>
</tbody>
</table>

The respondents indicated self-development and the possibility of acting for the good of other people as the most important benefits of doing their chosen job in the future.
Table 3. What benefits resulting from doing your future job are especially important for you? Based on the authors’ own research

<table>
<thead>
<tr>
<th>Benefit</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The possibility of making use of and developing one's talents, the possibility of self-fulfilment</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.39</td>
<td>.489</td>
</tr>
<tr>
<td>The possibility of acting for the good of other people, doing a socially useful job</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.44</td>
<td>.499</td>
</tr>
<tr>
<td>The possibility of performing a creative job</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.11</td>
<td>.312</td>
</tr>
<tr>
<td>Respect from other people</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.27</td>
<td>.446</td>
</tr>
<tr>
<td>High social prestige</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.17</td>
<td>.378</td>
</tr>
<tr>
<td>Well-paid job</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.29</td>
<td>.454</td>
</tr>
<tr>
<td>The possibility of having a high position in the society</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.10</td>
<td>.302</td>
</tr>
<tr>
<td>The possibility of cooperating with other people</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.40</td>
<td>.492</td>
</tr>
<tr>
<td>A lot of free time</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.03</td>
<td>.174</td>
</tr>
<tr>
<td>The possibility of solving problems autonomously</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.09</td>
<td>.292</td>
</tr>
<tr>
<td>Lack of physical effort</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.05</td>
<td>.227</td>
</tr>
<tr>
<td>The possibility of finding a job abroad</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.12</td>
<td>.331</td>
</tr>
<tr>
<td>No health risks involved</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.02</td>
<td>.151</td>
</tr>
<tr>
<td>Flexible working time</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.05</td>
<td>.227</td>
</tr>
<tr>
<td>The possibility of acquiring new knowledge and skills</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.43</td>
<td>.496</td>
</tr>
<tr>
<td>The possibility of early retirement</td>
<td>129</td>
<td>0</td>
<td>1</td>
<td>.29</td>
<td>.454</td>
</tr>
<tr>
<td>Valid N (excluding with observations)</td>
<td>129</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What is interesting, social sensitivity, which the respondents indicated as one of the reasons behind choosing their future position, is not a hint when it comes to the choice of ideological orientations. The majority of students under survey identified themselves with national-democratic (27.9%) or liberal (22.5%) views. As our other studies show, the respondents’ answers reflect the lack of political knowledge rather than their actual political beliefs (Marszałek-Kawa, Plecka, 2018, pp. 20–29). The following research findings confirm this statement.


Table 4. Which of the ideological orientations below is the closest to you?
Based on the authors' own research

<table>
<thead>
<tr>
<th>Valid Ideological Orientation</th>
<th>Empirical Probability</th>
<th>Percentage</th>
<th>Valid Percentage</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communist</td>
<td>2</td>
<td>1.6</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Socialist</td>
<td>2</td>
<td>1.6</td>
<td>1.7</td>
<td>3.3</td>
</tr>
<tr>
<td>Social-democratic</td>
<td>4</td>
<td>3.1</td>
<td>3.3</td>
<td>6.6</td>
</tr>
<tr>
<td>Liberal</td>
<td>29</td>
<td>22.5</td>
<td>24.0</td>
<td>30.6</td>
</tr>
<tr>
<td>National-democratic</td>
<td>36</td>
<td>27.9</td>
<td>29.8</td>
<td>60.3</td>
</tr>
<tr>
<td>Ecological</td>
<td>4</td>
<td>3.1</td>
<td>3.3</td>
<td>63.6</td>
</tr>
<tr>
<td>Christian-democratic</td>
<td>14</td>
<td>10.9</td>
<td>11.6</td>
<td>75.2</td>
</tr>
<tr>
<td>None of the above because each of them has flaws.</td>
<td>4</td>
<td>3.1</td>
<td>3.3</td>
<td>78.5</td>
</tr>
<tr>
<td>It is difficult to say because I do not know what they differ in.</td>
<td>21</td>
<td>16.3</td>
<td>17.4</td>
<td>95.9</td>
</tr>
<tr>
<td>Centrism</td>
<td>1</td>
<td>.8</td>
<td>.8</td>
<td>96.7</td>
</tr>
<tr>
<td>Democratic</td>
<td>2</td>
<td>1.6</td>
<td>1.7</td>
<td>98.3</td>
</tr>
<tr>
<td>Islamic</td>
<td>2</td>
<td>1.6</td>
<td>1.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>93.8</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Against the background of political beliefs, the issue of political activity, as a reflection of political subjectivity, looks quite interesting. While it was to some degree possible to state that the respondents were able to identify their ideological preferences, these are not manifested in the public sphere whatsoever. The majority do not support any forms of protest regardless of their character (55% of the people under survey). If any form of a demonstration of political views appears, it is confined to signing endorsement lists referring to specific actions.
Table 5. In what way do you demonstrate your attitude? Based on the authors’ own research

<table>
<thead>
<tr>
<th>Valid</th>
<th>Empirical probability</th>
<th>Percentage</th>
<th>Cumulative percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I take part in: demonstra-tions, picket lines.</td>
<td>11</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td>I sign endorsement lists.</td>
<td>31</td>
<td>24.0</td>
</tr>
<tr>
<td></td>
<td>I take part in happenings.</td>
<td>8</td>
<td>6.2</td>
</tr>
<tr>
<td></td>
<td>I do not support any forms of protest.</td>
<td>71</td>
<td>55.0</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>7</td>
<td>5.4</td>
</tr>
<tr>
<td>Total</td>
<td>128</td>
<td>99.2</td>
<td>100.0</td>
</tr>
</tbody>
</table>

| Missing data | 99 | .8 |

| Total | 129 | 100.0 |

| National Radical Camp, All-Polish Youth | 2 | 1.6 | 1.6 | 44.5 |
| I identify myself with no political party or social movement. | 71 | 55.0 | 55.5 | 100.0 |
| Total | 128 | 99.2 | 100.0 |

| Missing data | 99 | .8 |
| Total | 129 | 100.0 |

Another form of expressing political subjectivity is electoral participation. More than a half of our respondents (53.5%) cast a vote in the last presidential election (2015). This clearly shows that students under survey consider electoral participation a lot more important than any other form of participation in the public sphere. However, we cannot state that this formula best reflects a sense of political subjectivity without further in-depth research in the field.
Table 6. Did you vote in the last presidential election? Based on the authors' own research

<table>
<thead>
<tr>
<th></th>
<th>Empirical probability</th>
<th>Percentage</th>
<th>Valid percentage</th>
<th>Cumulative percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>0</td>
<td>18</td>
<td>14.0</td>
<td>14.1</td>
</tr>
<tr>
<td>Yes</td>
<td>69</td>
<td>53.5</td>
<td>53.9</td>
<td>68.0</td>
</tr>
<tr>
<td>No</td>
<td>41</td>
<td>31.8</td>
<td>32.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>128</td>
<td>99.2</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing data</td>
<td>9</td>
<td>1</td>
<td>.8</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>129</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusion

The results of our study show that university education is of value to students thanks to the opportunities it opens in future – both in the individual and social dimension. Higher education shapes civil and social subjectivity – this is a conclusion from the most frequently chosen answers in the questionnaire. Educational background, however, does not significantly affect political subjectivity as manifested by participation or expressing one's political views. If we narrow down participation to electoral activity, we can observe a certain relationship between the phenomenon of education and political subjectivity – there is a growing awareness of participation, which is a sense of agency, i.e. the conviction than one can influence the surrounding reality.

References

Korzeniowski, K. (1993). Alienacja polityczna a uczestnictwo polityczne w warunkach transformacji systemu [Political Alienation and Political Participation in the Conditions


Abstract
The study aimed at discovering whether gender, age, and different cultural background may be associated with procrastination. Therefore, procrastination tendencies by students of Polish nationality residing in Poland with Polish students living in Austria were compared. All participants completed the Pure Procrastination Scale that measured the degree of self-reported procrastination. Results revealed higher procrastination scores by emerging adults living in Poland than Austria. Males from the Polish diaspora reported more procrastination behaviors than females. In contrast, procrastination was higher among Polish female than male citizens. Delaying tasks were higher in older than younger respondents within the Polish sample; for students in the Polish diaspora, procrastination decreased with age.

Keywords: procrastination, adolescence, students, Poland, Austrian diaspora, culture

Introduction
People delay and put things off for different reasons, and often for reasons more than laziness or fatigue (see Ferrari, & Tibbett, 2017). Among students, delay of academic assignments may be because they feel the need to find additional data to perform the task on an optimal level of performance. Psychological studies revealed biological and socio-cultural determinants of procrastination. Adherents
of biological grounds for procrastination concentrate upon genetic (Gustavson, et al., 2017; Gustavson, & Miyake, 2017), and temperamental factors (Steel, 2007; Strenze, 2007), as well as the maturational lag of the frontal lobes and consequent disorders in executive functions, leading to inability to perform goal-oriented actions (Gustavson, & Miyake, 2017; Rabin, Fogel, & Nutter-Upham, 2011). Since the frontal lobes are the last brain structures to attain maturity, several studies have concentrated on the interrelations between age and procrastination behaviors (Beutel, et al., 2016; Steel, 2007; Steel, & Ferrari, 2013). Petrill (1997) argues that executive functions, which are closely connected to the behavioral aspect of procrastination, depend both upon hereditary (molar) and environmental (modulary) factors.

The behavioral approach to procrastination connects disorders of the self-regulatory system with an impulsive need for immediate reinforcements as the most important predictor of procrastination (Tice, & Bratslavsky, 2000; Tappolet, 2010; Sirois, 2004). Lack of motivation (Steel, & König, 2006; Steel, & Weinhardt, 2018), as well as treating tasks as aversive (Blunt, & Pychyl, 2000; Evans, Baer, & Segerstrom, 2009), are also considered to be important behavioral predictors of procrastination. At the same time, Steel (2007) argues that gender, nationality and a place of residence are significant factors associated with procrastination. Findings of a Japanese study revealed differences between younger adults and middle aged and older adults but not between gender (Nomura, & Ferrari, 2018) but other studies did not confirm those differences (Ferrari, Özer, & Demir, 2009).

**Cultural differences between Poland and Austria**

Although both Poland and Austria are members of the European Union, cross-cultural psychological research situates them in different locations (Compare Countries, 2018). Austria is an industrialized country with a well-developed economy and democratic institutions. The emphasis here is placed upon individual success and persistence in action; hence, individual targets are more important than group objectives (Triandis, 1995; Triandis, & Gelfand, 1998). Hofstede, Neuijen, Ohayv, and Sanders (1990) argue that this is in contrast with less economically developed countries of the former Communist block, which represent a collectivistic culture. In these countries, cooperation and group objectives are more important than individual needs and the targets of individual group members. Poland can be located between collectivism and individualism, with a tendency toward individualism due to social and economic changes that took place after regaining its autonomy.
A distinction between a female and male culture is another factor that differentiates Austria and Poland. According to Hofstede, Hofstede and Minkov (2000), Austria is an example of the “masculine culture” with typical masculine traditions and values, such as order, high efficacy of behavior, competition, individual career and financial success. Poland is less masculine and more “feminine” in nature with a preference for such values as cooperation, mutual understanding, and agreeableness.

**Research Focus**

Cultural and demographic differences between the countries may be the source of different socialization patterns, educational standards and demands towards young people. Therefore, an analysis was performed of procrastination behaviors among youths with Polish nationality at different educational stages (secondary schools and high schools), residing and studying in Poland, and among students from the Polish diaspora in Austria. The study aimed at discovering whether gender, age, and different cultural background may be associated with procrastination in the two groups.

**Methodology of Research**

**General Background of Research**

The present study included Polish students attending secondary and high schools in Lublin, Poland ($n=101$) and Polish students born and residing in Vienna, Austria ($n=105$). Students from Austria were recruited from the Polish School for Polonia in Vienna, a school established in 1977 by the decree of the Polish Ministry of National Education. Teaching at the school is complementary to compulsory education provided in Austrian schools. The curricula and education stages are the same as in Poland, and comprise primary, secondary, and high schools. Each class met once a week from four to eight p.m. (16:00–20:00) because students from Polonia attend Austrian schools during the day. The school is free of charge and participation is voluntary. All students speak Polish at an advanced level.

**Sample of Research**

The age range of the both groups was 12–19 years ($M = 15.18; SD = 2.05$), and the number of males and females was very close. The details of demographic variables are presented in Table 1.
Table 1. Demographic variables

<table>
<thead>
<tr>
<th>Gender</th>
<th>Females</th>
<th></th>
<th>Males</th>
<th></th>
<th>Age</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Austria</td>
<td>62</td>
<td>59</td>
<td>43</td>
<td>41</td>
<td>15.15</td>
<td>2.06</td>
</tr>
<tr>
<td>Poland</td>
<td>63</td>
<td>62.4</td>
<td>38</td>
<td>37.6</td>
<td>15.64</td>
<td>2.07</td>
</tr>
<tr>
<td>Total: 105</td>
<td></td>
<td>Total: 101</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Instrument and Procedures

All participants completed the 12-item Pure Procrastination Scale (PPS - Steel, 2010; Polish translation by Stępień, & Topolewska, 2014) that measured the degree of self-reported academic procrastination. Higher sum scores reflected greater tendency for academic procrastination, the maximum possible score being 60 points. The reliability of the tool was assessed by Cronbach's alpha in the Polish translation version of 0.89 (Stępień & Topolewska, 2014). With the present samples, alpha was 0.86.

Procedure

The studies were conducted in school classrooms after getting the permission for data collection from school authorities. Participants were seated at separate tables, and an informed consent for taking part in the study was obtained from each of them. After reading out the instruction, they were handed PPS test sheets and asked to give answers to all questions. The participation was anonymous, voluntary, and there was no time limit.

Data Analysis

Because of the broad age range of the participants, two age subgroups were distinguished within both cultural groups. The first subgroups (n = 105) encompassed students from 12–15 (M = 13.23; SD = .78), i.e. in early adolescence and they all attended secondary schools. The older age group (n = 101) included high school students aged 16–19 (M = 16.77; SD = 1.11)(late adolescence).

Since the numbers of participants in each group differed slightly the chi-squared test was calculated on their numbers. The obtained score, $\chi^2(1) = .078$;
$p = .780$, showed that those differences in the number of participants within the examined groups were not statistically significant. The homogeneity of the age groups was also confirmed, $\chi^2(1) = 2.350; p = .125$. In addition, homogeneity of the cultural groups, including females as well as males, from both age subgroups in total was measured. Since the number of females was bigger in both groups, a chi-squared test was applied. The value of $\chi^2$ for the group of females was $\chi^2(1) = .008; p = .929$; and for the group of males – $\chi^2 = .309; p = .579$, which confirmed their homogeneity. The next step was connected with the choice of adequate statistical procedure; therefore, the distribution of results was evaluated. The Shapiro-Wilk test was administered since number of participants was below 100 in all groups. The data presented in Tables 2 and 3 show that the distribution of scores is skewed.

**Table 2.** Mean, median, standard deviation, min-max scores, skewness, kurtosis and values of the Shapiro-Wilk test for procrastination

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>Me</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>W(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procrastination</td>
<td>A</td>
<td>30.45</td>
<td>30.00</td>
<td>8.71</td>
<td>15</td>
<td>.435</td>
<td>-.365</td>
<td>.970 (.017)</td>
</tr>
<tr>
<td></td>
<td>PL</td>
<td>33.18</td>
<td>33.00</td>
<td>9.51</td>
<td>13</td>
<td>.408</td>
<td>.047</td>
<td>.981 (.148)</td>
</tr>
</tbody>
</table>

$W$ – Shapiro-Wilk test (N<100); $df_A = 105$, $df_{PL} = 101$.

**Table 3.** Standard error for skewness and kurtosis

<table>
<thead>
<tr>
<th></th>
<th>Standard error for skewness</th>
<th>Standard error for kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>.236</td>
<td>.467</td>
</tr>
<tr>
<td>Poland</td>
<td>.247</td>
<td>.476</td>
</tr>
</tbody>
</table>

**Results of Research**

Bedyńska and Cypryańska (2013) advocate the use of parametric tests in such cases, pointing out that the obtained results are plausible. Therefore, the homogeneity of variances in the two main groups was measured by Levene’s test [$F(1,204) = .099, p = .753$]. It confirmed the legitimacy of the use of parametric tests in further analyses. The tests were administered in order to discover whether the tendency to procrastinate depended to a greater degree upon gender, age or culture. In addition, interrelations among those variables were measured.
A multifactorial analysis of variance (ANOVA) for the intergroup plan in the 2x2x2 scheme was carried out with the use of IBM SPSS Statistics 24 PS IMAGO 4.0. A main effect for the *country* was only on the level of tendency \([F(1,198) = 3.527; \, p = .062, \eta^2 = .018]\). Analysis of the differences between mean scores, with Bonferroni correction for multiple comparisons, showed that students living in Austria had a weaker tendency to procrastinate than those living in Poland \((M_{A-PL} = -2.248, SE = 1.97; \, p = .062)\). The main effect for age was significant \([F(1,198) = 7.956; \, p = .005, \eta^2 = .039]\), and analysis of the differences between mean scores, with regard to Bonferroni correction, revealed that the younger students (12–15 years.) procrastinated less than their older colleagues (16–19 years.) \((M_{1-2} = -3.376, SE = 1.197; \, p = .005)\). The main effect for *gender* was not significant \((F<1)\).

An interaction effect for *country* and *age* was significant, \([F(1.198) = 16.274; \, p = .000, \eta^2 = .076]\), for the two main groups, but differed in the age subgroups. It was not significant in the case of the younger group, while in the older group it reached statistical significance, \([F(1,198) = 15.55; \, p = .000, \eta^2 = .073]\). This means that Polish students in late adolescence manifested more procrastination behaviors than their Austrian peers. These results are presented in Figure 1.

Figure 1. Interaction effect of country and age

The interaction effect for country and gender was also significant for the two main groups, \([F(1,198) = 20.557; \, p = .000, \eta^2 = .094]\), and was differentiated. It was
significant in females, $F(1,198) = 26.512; p = .000, \eta^2 = .118$, as confirmed by analysis of the differences between the means ($M_{\text{females-A-PL}} = -7.67, SE = 1.49; p = .000$). As presented in Figure 2, young females living in Poland showed a much stronger tendency to procrastinate than the females residing in Austria. Interestingly, the interaction effect for country-gender in males was not significant.

Further analysis of intragroup comparisons revealed that males from Polonia procrastinated more often than females, $F_A(1,198) = 20.138; p = .000, \eta^2 = .092; M_{A,\text{females}-\text{males}} = -7.408, SE = 1.165; p = .000$. On the other hand, the tendency to procrastinate was the reverse in the Polish students, since the females proved to procrastinate more than males $F_{PL} (1,198) = 3.951; p = .048, \eta^2 = .020; M_{PL,\text{females}-\text{males}} = 3.446, SE = 1.734; p = .048$.

The last stage of analysis included comparisons of mean scores in order to evaluate the interaction effect for country, gender, and age. The analysis revealed that the procrastination level decreased in late adolescence, both in females and males in the case of Austrian students of the Polish diaspora. The Polish students, however, exhibited an opposite tendency, since the mean level of procrastination was significantly higher in the older age group (Table 4).
Table 4. Mean scores for interaction of country, age and gender

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Country</th>
<th>Gender</th>
<th>Age groups</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Austria</td>
<td>Females</td>
<td>12–15</td>
<td>28.135</td>
<td>1.357</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16–19</td>
<td>26.520</td>
<td>1.650</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Males</td>
<td>12–15</td>
<td>35.381</td>
<td>1.801</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16–19</td>
<td>34.091</td>
<td>1.759</td>
</tr>
<tr>
<td></td>
<td>Poland</td>
<td>Females</td>
<td>12–15</td>
<td>31.813</td>
<td>1.459</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16–19</td>
<td>38.194</td>
<td>1.482</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Males</td>
<td>12–15</td>
<td>26.542</td>
<td>1.684</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16–19</td>
<td>36.571</td>
<td>2.205</td>
</tr>
</tbody>
</table>

Discussion

The present study showed that both cultural and demographic factors might play a significant role in academic-related procrastination behaviors among emerging adults in a university setting. In general, students living in Poland tended to procrastinate more frequently than the students from the Polish diaspora living in Austria. This result might reflect a respect for work and the ability to organize one’s own time and that of others in a country with deeply rooted Protestant ethics of work among those in the diaspora (Hofstede, Hofstede, & Minkov, 2000). At the same time, it was found that younger compared to older participants from both countries revealed a lower level of procrastination. Contrary to the common belief that the augmentation of demands may lead to higher procrastination (Ferrari & Tibbett, 2017), the intergroup analysis revealed that procrastination was significantly higher in the older group of Polish students, whereas it was lower in students from the Polish diaspora in the same age group. It is highly probable that adolescents from Polonia have experienced an intensive educational training in organizing their work, and developing skills to plan their actions in advance.

The significance of demographic factors is attested to by the studies by Ferrari and colleagues (e.g., Argiropoulou, & Ferrari, 2015; Ferrari, O’Callaghan, & Newbegin, 2005; Mariani, & Ferrari, 2012; Steel, & Ferrari, 2013), which indicated close relationships between procrastination and gender, age, marital status, level of education, and nationality. For instance, Steel and Ferrari (2013) included 16,413 English speaking adults (58.3% women; 41.7% men: \(M_{\text{age}}=38.3\) years, \(SD=14\) living in the USA, Australia, New Zealand, Canada, Ireland, United Kingdom, Philippines and Russia. They found that men reported procrastinating more often than
women. A typical procrastinator was a young, single man with little schooling, who resided in a country with a low level of self-discipline. This outcome confirms the significance of cultural factors (cf. Ferrari, & Tibbett, 2017).

Further confirmation of the mediating role of culture is provided by differences between the females participating in the present study; namely, the Polish women living in Poland were found to procrastinate more often than those women residing in Austria. Interestingly, no differences were found among males. Is it plausible that Polish young females procrastinate more than females from Polonia because they are allowed to do so.

On the other hand, procrastination behaviors were significantly higher among young men from Polonia than in those males residing in Poland. This finding is in accordance with the study by Klassen et al. (2009) who conducted research on procrastination in a group of 612 adolescents from Canada and Singapore. Those authors not only observed that Singaporean students reported higher levels of procrastination behaviors, but also found that the procrastination level was higher in males than in females in that country. Lower tendency of Turkish females as compared to males to delay tasks was also noted by Karakitapöğlu, & Imamoğlu (2002). In addition, Ferrari, Callaghan, and Newbegin (2005) reported higher rates of arousal and avoidance procrastination in adults from the United Kingdom than in adults from Australia and the United States. Yet after “pure” procrastination was calculated there was no significant difference across the three countries. It needs to be stressed, however, that those were all English-speaking countries with a similar cultural background.

Taken together, it seems that the strength of one’s tendency to procrastinate is culturally bound to a considerable degree. There remain, however, some ambiguities concerning the role of gender and age as most studies were conducted on adults. It is worth pointing out that the research that included emerging adults did find the differences between males and females in their tendency to defer tasks (Argiropoulou, & Ferrari, 2015). It suggests that procrastination behaviors may be linked to the frontal lobe maturation, and the frontal lobes maturation lag in particular (Gustavson, & Miyake, 2017; Rabin, Fogel, & Nutter-Upham, 2011).

**Conclusions**

The present study revealed significant differences between the Polish students living in Poland and the students from the Polish diaspora residing in Austria. Generally, the students from the Polish diaspora procrastinated significantly less
than their Polish peers, and age and gender proved to be important predictors for procrastination behaviors. It was found that Polish students aged between 16–19 procrastinated more often than their Polonia peers from the same age group. Further, the following interrelations among the examined variables were observed:

1) the interaction effect of country and gender for procrastination was differentiated as only Polish girls were found to procrastinate to a higher degree than the girls of the Polish diaspora in Austria;

2) intragroup comparisons revealed a higher tendency to procrastinate in boys than in girls from Polonia, while in the Polish group that tendency was reversed since it was the girls who revealed a higher degree of procrastination behaviors;

3) interaction of country-age-gender revealed a decrease in procrastination with age in the students from Polonia; conversely, the level of procrastination increased in Polish adolescents in the older age group.

It should be stressed that procrastination behaviors in adolescents may influence the educational outcomes. It creates the need to gain better understanding of its causes and manifestations in order to develop programs of overcoming the tendency to procrastinate. Hence, the above-described findings pose a great challenge for both teachers, parents and psychologists.

References


School Burnout Syndrome in the Students of Helping Professions and its Possible Predictors

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Abstract
This paper deals with the burnout syndrome among students in the context of selected demographic characteristics of respondents, frequented level of study, satisfaction with the study, frequented study program, study performance and the vision for their future careers. The study aims to identify the possible predictors of the burnout syndrome among the students and identify the risk groups of students. Altogether 350 students from the Faculty of Education participated in the research, and the SBI (School Burnout Inventory) questionnaire was used to measure the burnout syndrome. The main findings include the rate of school burnout, with almost 18% of students exhibiting a high level. Using the method of classification trees, variables such as age and the overall satisfaction rate with the study were identified as predictors on the “Cynicism” subscale; grade average, age and field of study on the “Inadequacy” subscale, and no predictor was identified on the “Emotional Exhaustion” subscale. These results were complemented by qualitative interviews with the students and a teacher training specialist.

Keywords: burnout syndrome, stress disorder, emotional exhaustion, social support

Introduction
The burnout syndrome is a well-studied area in the context of helping professions. One of the first tools that was used to measure the burnout syndrome was the questionnaire introduced by the authors Christina Maslach and Susan E. Jack-
son MBI (Maslach Burnout Inventory). The burnout syndrome was described as a syndrome of emotional exhaustion and cynicism that often occurs among the individuals engaged in helping professions (Maslach, Jackson, 1981). The main aspect of burnout, according to the authors, is emotional exhaustion caused by the depletion of resources; another aspect is the development of negative feelings towards the clients, and the third aspect is own self-assessment, which is based on personal unhappiness and a sense of dissatisfaction with the work. Based on the above, the authors made a questionnaire with three subscales focusing on the individual aspects of the burnout syndrome, and highlighted the correlation between the burnout syndrome and physical exhaustion, insomnia, alcohol and drug use and various kinds of relationship problems (Maslach, Jackson, 1981).

Although the beginnings of the burnout syndrome analysis are associated mainly with the performance of helping professions, it can also be noticed in the performance of other social roles, for example, it can be connected with college study (Shin, 2011, Dyrbye et al., 2009; Hernesniemi et al., 2017; Kuittinen a Meriläinen, 2011; Zarobkiewicz, et al., 2018, Nikodijević, Labrović, Doković, 2012; Stein, Sibanda, 2016; Ried, et al. 2006, Merino-Tejedor. et al., 2015, Aghajari et al., 2018). Various studies use different terminology to label this concept: academic burnout, student burnout, student academic burnout, school burnout. For the purposes of the present paper, we will use the term “school burnout” or “school burnout syndrome”.

School burnout is a stress disorder associated with the school that can, according to Salmela-Aro et al., (2009), occur in three dimensions: cynicism and detached attitude towards school (manifested by indifference and detached attitude to school); emotional exhaustion (as the basic individual stress item of the syndrome) and a feeling of inadequacy as a student (this relates to the limited sense of competence and academic achievements). School burnout can be caused by multiple reasons. According to Salmela-Aro et al (2008), it can be due to the school itself, or personality and demographic characteristics. In our research, we focused on both types of reasons.

To measure school burnout, researchers use a variety of tools: MBI SS – (Maslach Burnout Inventory-Student Survey); Copenhagen Burnout Inventory, SBI (School Burnout Inventory) is used most commonly.

The consequences of burnout among students are linked to different aspects such as cancellation of enrollment in courses, poor academic results and a negative attitude to the university (Neumann et al, 1990), and lack of engagement in student life (Schaufeli et al, 2002). A meta-analysis conducted on 19 studies showed a strong negative correlation between the school burnout syndrome and
social support – social support especially from the schools and teachers, with a significant role of the parents and peers (Kim et al., 2018).

**Research Methodology**

The main objective of our research was to determine the rate of school burnout, to identify the possible predictors of the school burnout syndrome and the at-risk students. This objective was materialized through the quantitative strategy of the questionnaire. The questionnaire was based on the SBI (School Burnout Inventory) by Salmela-Aro et al. (2009), which was translated and adapted by Ms. Pechancová. Each item was assessed by the respondents on a 5-point Likert scale (1 = strongly agree, 5 = strongly disagree). The individual items fall into three subscales - “Emotional Exhaustion”, “Cynicism and Detached Attitude to School” and “Feelings of Inadequacy as a Student”. Additionally, the questionnaire included demographic questions and questions relating to the overall satisfaction with the study, the future profession and the respondent’s study average.

Another objective of our research was to investigate the subjective view of the respondents on the school burnout syndrome, its possible sources and the position of the teacher in the emergence of the school burnout syndrome. This objective was realized through a qualitative strategy by conducting interviews with the respondents (both students – future teachers, and a teacher training specialist).

**Research Sample**

The quantitative part of our research sample consisted of 350 respondents – students of Social Work (19.4%, N = 68), Special Education and Education of Mentally Handicapped Students (44.9%, N = 157) and Preschool and Elementary Education (35.7%, N = 125) at the Faculty of Education. The research sample consisted of 36 (10.3%) men and 314 (89.7%) women. The average age of the respondents was 24.57 years, the sample had a median of 23, modus of 22, standard deviation of 6.56, minimum age was 19 and maximum age was 54. The weighted study average was indicated by the respondents as follows: weighted average 1.0 was indicated by 4.6% (16) of the respondents, weighted average from 1.1 to 2.0 was indicated

\[1\] The author followed the relevant principles to adapt foreign methods – translation into Czech, re-translation into English, and editing of the items.
by 71.1% (249) of the respondents, weighted average of 2.1 to 3.0 was indicated by
21.4% (75) of the respondents, and weighted average of above 3.1 was indicated
by 2.9% (10) of the respondents.

The qualitative part of the interview was attended by 13 respondents – students
at the Faculty of Education, and one teacher training specialist.

**Instrument and Procedure**

To process the results in the quantitative section, statistical procedures of
descriptive statistics – calculation of frequency (N) and percentages (%), mean,
standard deviation (SD), and inferential statistics procedures – parametric and
non-parametric tests, were used. To determine the predictors, we used the CHAID
classification tree method. All tests were performed at a significance level of \( \alpha = 0.05 \) and were implemented in SPSS 21.0.

**Results**

**Quantitative part**

Chart 1 shows the average values of the individual items making up the total
burnout syndrome according to the SBI questionnaire (the higher the average, the
higher the school burnout syndrome value, using a 5-point Likert scale).

**Chart 1.** The average value of the SBI questionnaire items
The average score of school burnout in the students at the Faculty of Education on the SBI scale was 28.2 ± 5.4; minimum 8, maximum 38. After determining the school syndrome levels (average burnout = mean ± standard deviation, low burnout syndrome = value below average, and high burnout syndrome = value above average), the results were shown as follows. The low burnout syndrome is exhibited in 16.9% of the respondents, the average school burnout syndrome can be observed in 65.4% of the respondents, and the high school burnout syndrome was reported by 17.7% of the respondents.

In the following analyses, we distributed the questionnaire items into the individual subscales – “Emotional Exhaustion”; “Cynicism and Detached Attitude to School” and “Feelings of Inadequacy as a Student”, which were first compared with the demographic characteristics – age and sex, field of study and level of study (Table 1). Gender has not proven to be a distinguishing factor among the respondents and the individual components of the school burnout syndrome – none of the subscales have shown any statistically significant difference between girls and boys. The field of the study factor has demonstrated differences on the “Feelings of Inadequacy as a Student” subscale, and after the post-hoc test (Tukey), differences were noted between Special Education students and Preschool and Elementary Education students. In the level of the study category, the difference was also shown in the “Feelings of Inadequacy as a Student” subscale, with higher average burnout values in Masters students.

The subsequent analyses included factors such as overall satisfaction with the study (the respondents were to express their satisfaction on a 5-point scale where 1 = very dissatisfied and 5 = very satisfied), weighted grade average and the vision of the future profession (the respondents were to express whether they intend to
pursue the profession they study at the university). The overall satisfaction with the study is a factor that correlates with the “Cynicism” and “Feelings of Inadequacy as a Student” subscale. The higher the overall satisfaction with the study, the higher the burnout syndrome in both above subscales. In the case of the study results, a significant correlation was also shown in the “Cynicism” and “Feelings of Inadequacy as a Student” subscale. The worse the study results, the more intense the burnout in the areas outlined above.

Table 2. A comparison of SBI subscales with respect to the satisfaction with the study, the study results and the vision of the future career

<table>
<thead>
<tr>
<th>Satisfaction with study</th>
<th>EE</th>
<th>C</th>
<th>I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation coefficient</td>
<td>0.068</td>
<td>0.343**</td>
<td>0.345**</td>
<td>0.320**</td>
</tr>
<tr>
<td>p</td>
<td>0.581</td>
<td>0.004</td>
<td>0.004</td>
<td>0.008</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study results</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation coefficient</td>
<td>0.045</td>
<td>-0.385**</td>
<td>-0.353**</td>
<td>-0.218</td>
</tr>
<tr>
<td>p</td>
<td>0.718</td>
<td><strong>0.001</strong></td>
<td><strong>0.003</strong></td>
<td>0.074</td>
</tr>
</tbody>
</table>
School Burnout Syndrome in the Students of Helping Professions and its Possible Predictors

<table>
<thead>
<tr>
<th>Satisfaction with study</th>
<th>EE</th>
<th>C</th>
<th>I</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vision of future career</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes (average ± SD)</td>
<td>12.4 (2.0)</td>
<td>9.9 (1.5)</td>
<td>6.7 (1.7)</td>
<td>28.4 (5.4)</td>
</tr>
<tr>
<td>No (average ± SD)</td>
<td>12.3 (2.8)</td>
<td>8.9 (2.3)</td>
<td>6.4 (1.9)</td>
<td>28.3 (4.8)</td>
</tr>
</tbody>
</table>

EE = “Emotional Exhaustion”; C = cynicism; I = “Feelings of Inadequacy as a Student”; ** correlation is significant at a level of 0.001; p* Mann-Whitney U-test value

Predictors of students’ burnout on the SBI subscales (risk groups of students in the context of the school burnout syndrome)

The method of classification trees was used to identify the predictors of the burnout syndrome and the student risk groups in the context of the school burnout syndrome in each subscale. This method is used, for example, to identify the respondents belonging to a particular group, to assign the respondents into individual categories, and to predict the future events etc. The CHAID algorithm was used in the analysis. The individual burnout syndrome variables were used in the algorithm as dependent variables, and age, gender, study program, overall satisfaction with the study, weighted grade average and the vision of the future career of the respondent were used as independent variables. In the case of “Emotional Exhaustion” subscale, the algorithm did not identify any variable that would have predicted it. In the case of “Cynicism”, the most discriminating variable was age – younger respondents had higher burnout rates (mean = 9.6) than older respondents (mean = 8.4). For younger respondents, the node branches: it is discriminated by the overall level of satisfaction with the study – the dissatisfied respondents have a higher burnout rate (mean = 10.1) and conversely, the satisfied respondents have a lower burnout rate (mean = 9.0). Both nodes are final. In terms of risk, the youngest respondents who are generally dissatisfied with the study appear to be most at risk.

Chart 3. A classification tree of the “Cynicism” subscale
In the case of “Feelings of Inadequacy as a Student” subscale, weighted grade average is the most discriminating variable. The students with worse study results (mean = 6.1) exhibit burnout to a lesser degree than the ones with better results (mean = 7.2) – this node is final. In the case of the students with better averages,

Chart 4. A classification tree of the “Feelings of Inadequacy as a Student” subscale
the node branches based on age – older students exhibited lower levels of burnout than younger students, which are in turn discriminated by the field of study, with the students of Social Work and Special Education, having higher burnout levels than the students of Preschool and Elementary Education. In terms of risk, the most vulnerable students are the students of Social Work and Special Education under the age of 24, and with better academic results.

**Qualitative part**

**Selected analysis – An interview with students and teacher training specialist**

Besides the above quantitative research, which was implemented through a questionnaire, we also conducted qualitative interviews with the students, which enabled us to better understand the problems associated with the school burnout syndrome. We present the following key findings from the interviews:

**Have you noticed any of the symptoms of the burnout syndrome during the study?**

Only a few respondents did not experience any of the various symptoms of the school burnout syndrome. The most commonly reported symptoms included emotional exhaustion associated with the family and employer pressure (in the case where the respondent was employed), some respondents reported “reduced self-esteem and hopelessness”, “complete reluctance to go to lectures and learn”, and even somatization of the burnout syndrome and physical problems: “I felt fatigue, decreased performance and lack of sleep because I had to think about my school assignments and how to do them”. The respondents who reported no burnout syndrome provided different answers: “I never noticed it, I study well and have no problems”, “No, I never felt it”, “No, not in me, but I see it in my classmates – they struggle with the study and have problems of this nature.”

**What in your opinion causes the school burnout? What reasons are key?**

The most commonly reported reasons that cause burnout in the respondents were external reasons: “Student overload with excessive levels of responsibility (many courses per semester) and dwindling expectations and disappointment once at the university”. The external reasons for the school burnout syndrome also includes the behavior of the teacher: “Low motivation to study on the part of teachers”, “Poor cooperation with teachers and lacking feedback”. The respondents also highlighted
the Slovak university education system: “Malfunctioning education system”, but also “low status of the study program”. The internal root causes of burnout included “lack of mental hygiene”, “poor diet”, but also a combination of internal and external sources: “high pressure on the students to study particular issues that they themselves consider to be futile and useless”. In part-time students, the burnout syndrome is caused by the inability to reconcile family life and school obligations: “a lot of study assignments and duties, a lot of responsibilities at work – and taking care of family and children”, “a lot of responsibilities at school and at work”.

**What responsibilities, strategies and activities do you implement to eliminate or prevent school burnout?**

The respondents use various strategies and methods, e.g. physical activity, to eliminate school burnout. “I do sports to dissipate stress”, “I hike in the woods”, “I personally go for a walk with my family and have the support of my husband, which helps me in the times of trouble at school” but also various other forms: “autogenous training”, “family and doing what fills me (my hobbies)”, “relaxation and therapy”. Some respondents also included the school to this question, which in their opinion should: “involve the students into its activities”, “foster the loyalty of its students”, “ensure more support from the teachers” and “provide counseling for the students”.

**What role in the school burnout is played by the teacher?**

According to all the surveyed respondents, the teacher plays an important role in school burnout. Some respondents described the positive impact of the teachers in their answers: “...a very big role. One has a very different approach to those subjects where the teachers can discuss the issue interestingly and yet manage to build respect through their expertise”. “A very important role - if the teacher is empathetic, attentive and fair, it reduces the likelihood of burnout”. On the contrary, some respondents voiced the possible negative influence of the teacher on the school burnout syndrome: “If the teacher demands much from the students, it may happen that the students simply burn out”. “An important role - the more demotivating the teachers are, the more it affects the students”.

The interview with the teacher training specialist prof. E. Petláš showed that the school burnout syndrome is an area that is relatively unrecognized in our country with regard to university students and it is extremely important that it be researched in a relevant way. One interview with the respondent also posed the question of the root causes of burnout. In his view, these include the high demands of university study, complexity of requirements of the individual fields
of study, and an effort and desire to succeed already during the study to get a good job. The most interesting is the statement about a continuous reduction of demands during the admission process at the faculties of education and the related lack of desirable intellectual and cognitive equipment of the students, which can also result in the school burnout syndrome. In any case, the above reasons may be important predictors of school burnout, which can be verified with a further empirical research.

**Discussion and conclusions**

The results of our research show that the majority of students (65.4%) have an average degree of burnout, nearly 17% of the students have a low degree of school burnout, and 17.7% of the students have a high degree of school burnout. In comparison, the research results presented by other authors show that in a set of 545 respondents (students of medicine in the United States), 45% of the students suffer from burnout (Dyrbye et al., 2006), Samela-Aro, Hernesniemi et al. (2017) found that 33% of the students are at risk of burnout among Finnish university students (2427 respondents), and Kuittinen Meriläinen (2011) identified the burnout risk in 45% of Finnish students (set of 3 031 respondents).

The differences of the burnout syndrome subscale in each school did not show in terms of gender, and they only showed in the “Feelings of Inadequacy as a Student” subscale in relation to the field of study. In relation to the field of study, differences were noted on the “Feelings of Inadequacy as a Student” subscale between the Special Education students and Preschool and Elementary Education students. Research aimed at detecting the differences between the field of study was carried out e.g. by Škodová and Bánovčinová (2011), which found higher burnout among the students of medical disciplines than non-medical fields. Similarly, Majerníková and Obročníková (2017) compared the study of nursing and midwifery and found that the difference proved to be significant – a lesser degree of burnout is noted in the students of nursing. Among the other variables that affect the differences in the individual subscales we can mention e.g. satisfaction with the study and study results (“Cynicism” and “Inadequacy as a Student”) and the vision of future career (“Emotional Exhaustion”).

The following predictors of school burnout were identified in each subscale:
- “Cynicism and Detached Attitude to School”: age and level of satisfaction with the study. Risk groups: younger respondents who are generally dissatisfied with the study.
“Feelings of Inadequacy as a Student”: grade average, age and field of study. Risk groups: students of Social Work and Special Education, 24 years and younger, with a better grade average.

The satisfaction rate with the study was manifested as one of the risk predictors of burnout. If we view study satisfaction mainly within the context of fulfilling the students’ expectations, the universities should try to know the needs of their students and respond to these needs in a competitive environment as part of maintaining a quality university environment. In their research, Wulandari and Jager (2018) point to the importance of finding a balance between the students’ expectations, the mission of the university or college and the importance of possible feedback from the students.

The interviews with the respondents showed a great influence of the teachers on the school burnout syndrome, which was also presented by Kim et al. (2018) in his study. The authors report a strong social support from school, teachers, family and peers as a very important predictor. These two groups of social support providers have proven to be equally important in our interviews. The importance of quality school environment in the educational process is also emphasized by Petlák, Tištánová and Juszczyk (2019) in their research.

The research identified the predictors and high-risk groups of students that are most threatened by the school burnout syndrome. In the university study, it is necessary to take steps to ensure that these students have access to sociopsychological support to prevent the emergence and development of burnout. One of the solutions proposed by us is to understand the expectations of the students, which should be regularly monitored and incorporated into the operations in accordance with the mission of each university.

References
School Burnout Syndrome in the Students of Helping Professions and its Possible Predictors


Does the Green Image Enhance Student Satisfaction? 
(Evidence from Indonesia)

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Abstract
The Green Image has become one of the success indicators for various organizations including educational institutions. The Green Image is believed to improve the overall reputation of an organization and is hoped to have an impact on behavioral intentions of stakeholders. In the context of higher education in Indonesia, the green campus competition has been increasingly popular and something to look forward to. This study investigated the impact of the Green Image on university reputation and student satisfaction through multiple regression analysis. The respondents of this research were 441 students from several major universities in Indonesia selected through convenience sampling. The results of the study show that the Green Image influences university reputation and student satisfaction. University reputation is proven to mediate the effect of the Green Image towards student satisfaction. The results of the study are expected to fill in the gap in the literature of the Green Image in the context of the education sector and to be a reference for universities in pursuing and managing green reputation and enhancing student satisfaction.

Key words: the Green Image, university reputation, student satisfaction
Introduction

The Green Image has become increasingly popular in various parts of the world, including Indonesia. Various aspects of life are embedded with the word “green” to denote something or someone is environmentally friendly. Green building, green campus, green economy, green consumer, green product, all these are familiar phrases recently. Likewise, Indonesian consumers are showing increasing interests in green products as can be seen from the increasing crowds at green festivals routinely held by the local government in major cities in Indonesia, such as Jakarta.

Looking at the development of various green activities in recent years, it is estimated that the market for green products is very large and it has the potential to grow steadily. The relatively large and increasing market size, the commitment of the government for going green, and the pressure of the green consumerism movement bring attractive opportunities for marketers engaged in green products while at the same time encouraging other marketeers to pay attention to the green aspects of their businesses.

This phenomenon does not only occur in business sectors, such as retail, property, and other consumer products, but also occurs in the education sector. For example, Universitas Indonesia held a UI GreenMetric World University Ranking and gave a green award to universities that met green requirements. In 2018, UI GreenMetric Ranking of World Universities announced the Wageningen University & Research as the best green campus in the world. University of Indonesia ranked 27th in the world, and became the greenest campus in Indonesia. McAleer, Nakamura and Watkins (2019) said that university ranking is important to students and parents as well as other university stakeholders. The rank is used as an indicator to assess the reputation of a university.

The previous study by Cincera et al. (2012) found no evidence that students from green awarded schools were more pro-environmental than those who were new in the system, which is quite an enigma. Moreover, it is still unclear whether the Green Image would influence school reputation and more importantly, the satisfaction of students. This research is expected to fill in the gap in the literature of the Green Image in the context of the education sector. The results of the study are intended to serve as an input to education policy makers to encourage a green campus.

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2 http://greenmetric.ui.ac.id/overall-ranking-2018/
Literature Review

The Green Image

Image is an important concept in organization and marketing. Image is a reflection of the opinions and emotions that are accurate from someone. What an organization does and how the organization appears in the community will shape its image. Therefore, the image of an organization is formed based on the opinions and emotions of all the constituents of an organization. Organizational image is a public perception based on what is known to the general public about an organization (Marconi, 2002).

Some aspects related to organizational image are the name of the company, architecture, variations in services and products, traditions, ideology, and impressions of quality communicated by everyone who interacts with an organization. Organizational image has two basic components, namely functional and emotional components. Functional components are related to real attributes that can be measured easily while emotional components are related to the psychological dimension that is manifested from feelings and attitudes towards the organization. These feelings and attitudes are formed as a result of the experience with organizations (Berman & Evans, 1995).

From the marketing perspective, many consumer purchasing decisions depend on the image of the organization (Argenti & Forman, 2003). Today, it is not enough to win a competition simply by offering superior products and services; a company should also possess a good organizational image. The Green Image, especially, has become increasingly important because of society’s growing environmental consciousness (Turcksin et al., 2011). The Green Image can be manifested through policies and actions towards environmental preservation. In the context of consumer behavior, the society is increasingly critical of organizations that are not environmentally friendly. Therefore, green management can serve as a strategic tool as well as a competitive advantage (Lee et al., 2010). Moreover, environmentally friendly organizations tend to get positive reviews from consumers and in turn this influences their willingness to pay and revisit intention (Lee, Hsu, Han, & Kim, 2010; Kubickova, Nusair, Parsa, & Hu, 2014).

Chen (2008; 2010) defines the Green Image as perceptions that arise from interactions between institutions, personal, customers, and communities that are connected with commitment and concern for the environment. Green Images are believed to have a positive impact on a business organization. Yusof, Musa and Rahman (2012) showed the positive impact of Green Images on customer loyalty. Elissa (2010) reported that one of the reasons organizations pursued a Green
Does the Green Image Enhance Student Satisfaction? (Evidence from Indonesia)

Image was the effect on sales. Another study of the Green Image was carried out by Ng, Butt, Khong and Ong (2014) who investigated the effect of perceived brand quality and brand credibility on consumer perceptions of green brand image, green value, and green equity. In their study, they showed a significant effect of green brand image on green equity. Martinez (2015), empirically investigated the effect of the Green Image on green trust, green satisfaction, and green loyalty in the hospitality industry. She found that the overall effects of the Green Image on green trust, green satisfaction, and green loyalty were supported by her data. A recent study by Hwang and Choi (2018) in the airline industry showed that overall image of airlines affected the customers’ intentions to use them, word-of-mouth intentions as well as willingness to pay more. These studies show the crucial role of the Green Image on the formation of behavioral intentions across many service industries.

University Reputation

Reputation is a valuable intangible asset of a company. Gotsi and Wilson (2001) define reputation as how organizations are perceived or evaluated by various stakeholders over time. Stakeholders may evaluate a company based on their personal experience after encountering its various types of communication as well as symbols which project the company’s goals and actions relative to its competitors (Walsh, Mitchell, Jackson & Beatty, 2009).

Buchalska, Chmielewski and Doczekalska (2015) provided definitions of corporate reputations from seventeen authors in their paper. One of the comprehensive definitions of corporate reputation in their paper is the definition from Gotsi and Wilson (2001) above. Reputation is built over time through social interaction and public communication, and it is a long term process and continuous effort. Specifically, reputation shapes public perceptions of an organization and a long-standing reputation will shape brand awareness. A bad reputation will be difficult to form a strong brand, while a good reputation does not necessarily provide a guarantee of brand success (Page & Fearn, 2005).

Referring to the company’s reputation above, a definition of university reputation can be drawn up, namely the collective representation held by the university stakeholders from time to time. The university’s reputation is formed from stakeholders’ experience directly or indirectly with the university, and information received by stakeholders through various communication channels and symbols (Alessandri, Yang, & Kinsey, 2006). Information is obtained from the views of stakeholders on various university symbols such as logos, building architecture, and university activities. Moreover, university reputation also concerns the
perceptions of various stakeholders on how they are treated by the university’s management (Ressler & Abratt, 2009).

The identity of an organization is reflected in the self-presentation of the organization, which among other things is in the form of signs or signals that the organization shows (Van Riel and Berens, 2001). Argenti and Druckenmiller (2004) stated that the attributes of an organization as shown by people in organizations, products, and services offered are also organizational identities. The identity of this organization is captured as an image. This image contributes to the reputation of a company. The better the image of an organization, the better the reputation of the organization. One information compiled is about the impression of green from a university that is formed from various symbols and activities that signal environmental preservation. Specifically, this Green Image is estimated to be related to the university reputation. Therefore, the first hypothesis is as follows:

H1: The Green Image has a positive effect on University Reputation

**Students’ Satisfaction**

Students’ satisfaction is the main goal of every university. Satisfied students can be a source of a competitive advantage that will result in positive word of mouth, retention and student loyalty (Arambewela & Hall, 2009). In the world of higher education where students are seen as consumers, the concept of the student satisfaction is the key to successful service. Higher education providers are beginning to realize that the institutions they run resemble those in the service industry. Universities are beginning to focus activities on meeting the needs of their students. In their research, Oldfield and Baron (2000) stated that the world of higher education could be seen purely as a service industry, therefore student satisfaction as a consumer was very important.

Elliot and Shin (2002) defined student satisfaction as a subjective evaluation of students for various outcomes and experiences related to education. Student satisfaction is formed continuously from everyday life in the university environment. Various researches have proven that satisfied students can attract prospective new students through the positive word of mouth communicated to their friends and relatives. Moreover, it is also possible that after graduating they will return to the university to take further education (Marzo-Navarro, Pedraja-Iglesias, & Rivera-Torres, 2005).

The importance of the university reputation for its long-term survivability is undoubted. In general, the university reputation plays a role in many ways. One of them is a predictor of student satisfaction. Gruber, Fuß, Voss and Gläser-Zikuda
(2010) conducted a comprehensive study of student satisfaction with higher education services in Germany that uses a measuring tool they developed themselves. Gruber and his colleagues investigated fourteen factors that were designed to predict students’ general satisfaction with the university. That is one of the independent variables used is the reputation of the university. Referring to the research of Gruber et al. (2010), the second hypothesis is as follows:

H2: University Reputation has a positive effect on student satisfaction

In the retail context, there are many studies that examine the relationship between an image and consumer satisfaction, including the research conducted by Thakur and Singh (2012) and Sondoh Jr., Wan Omar, Wahid, Ismail and Harun (2007). In the hospitality industry, Martinez (2015) showed that satisfaction was influenced by the Green Image. In the university context, a similar pattern is expected. Therefore, the third hypothesis is as follows:

H3: The Green Image has a positive effect on Student Satisfaction.

Methodology of Research

The population of this research is several major universities in Indonesia. The sampling technique employed in this research was convenience sampling in which members of the population can be accessed and they are willing to be respondents. The total sample were 441 students, with 215 female students (48.8%) and 226 male students (51.2%).

Figure 1. Theoretical Framework
Figure 1 describes the relationships among the exogenous (The Green Image) and endogenous variables (University Reputation and Student Satisfaction). University Reputation was hypothesized to mediate the relationship between The Green Image and student satisfaction.

All research variables were measured using measurement scales that have been developed in previous studies. The Green Image was measured by the scale developed by Chen (2008). The University Reputation was measured by the scale developed by Melewar and Akel (2005) and Alessandri et al. (2006). Student satisfaction was measured by the scale developed by DeShields, Kara and Kaynak (2006). The questionnaire was developed bilingually, in Bahasa Indonesia and English. The questionnaire was then tried out with 30 respondents for reliability testing. The Cronbach Alpha value for all variables has indicated values greater than 0.7: 0.899, 0.910 and 0.720 for The Green Image, University Reputation and Student Satisfaction consecutively.

Table 1 contains a brief description of the variables, indicators and the measurement of each research variable:

<table>
<thead>
<tr>
<th>Variables</th>
<th>Indicators</th>
<th>Measurements</th>
</tr>
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<tbody>
<tr>
<td>The Green Image: Perception arises from interactions between institutions, personal, customers, and communities that are connected with commitment and concern for the environment (Chen, 2008)</td>
<td>1. Seen as the best role model in environmental management; 2. Professionals in managing the environment; 3. Success in managing the environment; 4. Most advanced in managing the environment; 5. A stable reputation for managing the environment; 6. Trusted in managing the environment 7. Dependable in managing the environment 8. Pay attention to customers about managing the environment</td>
<td>5-point Likert Scale</td>
</tr>
<tr>
<td>University Reputation: Collective representation held by university stakeholders from time to time (Alessandri, et al, 2006; Gotsi &amp; Wilson, 2001; Melewar &amp; Akel, 2005)</td>
<td>1. Provide high-quality education 2. Attract motivated students and high achievers 3. Have high quality lecturers 4. Have hope to continue to grow 5. Media coverage of the university generally is very positive 6. Often appears in the mass media 7. Is a responsible member of the community 8. Positive feelings for University 9. Strong emotional ties</td>
<td>5-point Likert Scale</td>
</tr>
</tbody>
</table>
Variables | Indicators | Measurements
--- | --- | ---
Student Satisfaction | 1. Academic services that I receive are according to my expectation | 5-point Likert Scale
Subjective evaluation of students on various outcomes and experiences related to education. (DeShields, 2006; Elliot & Shin, 2002) | 2. Non-academic services that I receive are according to my expectation | |
 | 3. I am satisfied with the quality of the education at my University | |
 | 4. The quality of the lecturer is not in doubt | |

**Results of Research**

This study aims to investigate whether The Green Image of a university can increase Student Satisfaction (H1). This study also investigates whether University Reputation has a positive effect on Student Satisfaction and whether University Reputation is a mediator in the relationship between green image and Student Satisfaction. (H2 and H3).

To answer the first hypothesis, a regression between green image as the independent variable and University Reputation as the dependent variable was carried out. Regression analysis produces an F value of 752.815 with a significance number of 0.000. Therefore, the model that shows the relationship between green image and University Reputation is a model that can be analyzed by regression. The t value is 27.437 with a significance value of 0.000. These results indicate that the influence of green image on University Reputation is positive and highly significant. Therefore, the first hypothesis which states that green image has a positive effect on the University Reputation is accepted. This result is in line with the estimate that green image has a positive impact on the reputations of organizations that seek to build and maintain their green image through their green marketing programs and campaigns as stated by Argenti and Druckenmiller (2004).

To answer the second hypothesis, that is University Reputation has a positive effect on Student Satisfaction and the third hypothesis, that is Green Image has a positive effect on Student Satisfaction, multiple regression analysis was carried out. Regression analysis produces an F value of 300.060 with a significance value of 0.000. Therefore, the regression model with two independent variables which are University Reputation and Green Image, and the dependent variable which is Student Satisfaction can be analyzed by regression. The t value for University Reputation is 6.668 with a significant value of 0.000, which means that University Reputation has a positive and significant effect on Student Satisfaction. The t value
for Green Image is 9.007 with a significance value of 0.000, which means that Green Image has a positive and significant effect on Student Satisfaction. Therefore, H2 and H3 are supported by the data. These results support previous research which suggested a positive relationship between the reputation of an organization and satisfaction with the organization (Gruber et al., 2010), and a positive relationship between the Green Image and satisfaction with an organization (Sondoh et al., 2007).

To investigate whether University Reputation acts as a mediator in the relationship between Green Image and Student Satisfaction, a mediation Model 4 was employed in SPSS (Hayes, 2013), with 5,000 bootstrap samples and 95% confidence intervals. The result showed that the effect of Green Image on Student Satisfaction through University Reputation is significant (indirect effect of Green Image on Student Satisfaction) with $a = 0.1417; SE = 0.0265; 95\% CI = [0.0928, 0.1972]$. This result confirmed the mediation effect of University Reputation in the relationship between Green Image and Student Satisfaction. The output of Model 4 of Hayes also confirmed the direct effect of Green Image on Student Satisfaction ran with simple regression analysis above ($t = 9.007; a = 0.2408; SE = 0.0267; 95\% CI = [0.1883, 0.2934]$).

**Conclusions**

The Green Image has been a popular phenomenon recently and is one of the topics that has received the attention of various organizations, including universities. Universities can take advantage from the Green Image concept in improving their reputation and satisfaction of their students. This study investigated the relationships between Green Image, University Reputation and Student Satisfaction. The results of the study show that Green Image has a positive effect on University Reputation and Green Image also has a positive and significant effect on student satisfaction. Likewise, University Reputation was proven to have a positive and significant effect on student satisfaction. This study also shows the mediating effect of University Reputation in the relationship between Green Image and student satisfaction. The results of the study are supposed to encourage various universities in Indonesia to build a Green Image. The study was only conducted in Indonesia thus generalizing the results of the study is limited. Future studies are expected to expand this study to a multi-country analysis by taking samples from several environments.
References


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Abstract
The theoretical and methodological framework of the undertaken issue is indicated by basic notional categories – culture, value and valuing orientations. While analyzing the philosophical and educational context, assumptions of social and cultural anthropology were applied (with a special focus on its anthropocentric-cultural current), (phenomenologically orientated) axiology and cognitive psychology (with the use of its cognitive-developmental theories). Assumption was also made concerning the exploration of youth’s image of the axiological world and the valuing orientations manifested by them, that make it possible to learn the way(s) rooted in culture and experience, in which learners understand themselves, Others and the world.

Referring to the results of the studies conducted in 2001–2018 in a few selected cultural borderlands of Poland with European countries (Austria, Germany, Czech Republic) and Ukraine, the undertaken discussion draws attention to the problem of shaping the multidimensional identity of young Poles and Ukrainians, as well as the individual structure of the axiological reality.

Keywords: social and cultural tendencies, youth environment, generation gap, values, value orientations, multidimensional cultural identity, comparative study
Introduction: Contemporary cultural contexts versus axiological (un)consciousness of the young generation

The youth living at the turn of the centuries is a new generation, quite different from their peers in previous generations. Their specificity and dissimilarity originates from the sociocultural, political and economic situation of the discussed countries, Europe and the world – the situation which becomes an important reference point. In the conditions of accelerated changes associated with globalization and transformational processes, the traditional order of values has been staggering – the values which pertain to particular human, social or economic situations gain growing acceptance. The observation of social life seems to indicate a relation between the contemporary cultural crisis and the crisis of orientation and valuing capability of the young. The contemporary youth do not share any longer the common worldview, axiology and a communication code, as it took place in postwar or post-Communist times. The young are a generation characterized by a growing diversity of attitudes and evaluations, specifically lost, reflective and focused on their own existence (Robertson, 1992; Inglehart, Welzel, 2007; Ptoukha, 2010; Kucharczyk, Łada, Schöler, 2017, pp. 127–137).

Taking into account the sociocultural context, in the development of an individual axiological awareness allows for indicating its significant relations with such issues as subject-orientation, intentionality and identity. Despite many studies and analyses in this field, these problems are still divergent, open and dispersed over different scientific disciplines and subdisciplines. The political, economic and sociocultural changes to which Polish and Ukrainian society (as well as the European Union and other countries or nations) have been subjected over the last decades, are expressed in the same new approach and many different ways of understanding the world, different values, lifestyles and views (Arnett, 2000, pp. 470–479; Klimstra, Luyckx, Branje, Teppers, Goossens, Meeus, 2013, pp. 1661–1673; Datsko, 2015, pp. 75–88; Dlugosz, 2016, pp. 11–26).

The shaping of the new sociocultural order is favourable for some axiological transformations, among which the ones taking place in life should be distinguished from the transformations of values that have been objectivized in culture, and are comprised in the objects created by this culture.

Looking into many studies conducted in this field allows us to specify some typical features in the image of values which the contemporary youth share, for instance:

– a quality of the social knowledge of the “transformation generation” that there is no awareness of their own generational distinctiveness;
– the level of the whole system of values is decreasing and the tendency to focus on life for oneself is increasing on a cross-generation scale;
– the significance of individual–private values is growing, contrary to the values of a social character, which are promoted by various (also educational) institutions;
– a new type of personality is being shaped, for which the model is self-fulfillment understood as conduct in compliance with the individual’s potentialities and needs and, at the same time, in rejection of any ideology (including religious) (Siwko, 2006, pp. 89–104; Ogrodzka-Mazur, Grabowska, Szafranska-Gajdzica, Kwadrans, 2016; Zarembo, 2017; Ogrodzka-Mazur, 2018, pp. 34–54; Sydyknazarov, Karzhaubay, Sydyknazarova, Bayurzhan, 2018, pp. 137–148).

Highly rated values of the youth from Poland and abroad

The authorial research conducted in 2002–2018 in Polish cultural borderlands (Polish-Belarussian, Polish-Czech, Polish-German and Polish-Slovak), as well as in some selected European countries (Austria, Germany, Czech Republic) have undertaken an important problem of shaping the multidimensional cultural identity of young Poles and their individual structure of the axiological reality¹. The current use of the strategy of longitudinal comparisons is based on time criterion and it is aimed at understanding the mechanisms of change and the factors which affect the behaviour of groups and individuals living in the same socio-economic and cultural period. This made it possible not only to present the inner dynamics of change in the values most highly rated by contemporary youth, but also to capture certain mechanisms that determine this change (Marshall, 2014).

¹ The studies have been conducted within the following projects: (1) Social, pedagogical and cultural determinants of the development and education of children and youth in the borderland – the research conducted since 1990 in the Faculty of Ethnology and Education at the University of Silesia by the Department of General Pedagogy (project supervisor: T. Lewowicki, E. Ogrodzka-Mazur), (2) The child’s acquisition of axiological competence in the situation of multicultural borderlands – a project financed in 2002–2005 by the State Committee for Scientific Research (KBN) (project coordinator: E. Ogrodzka-Mazur), (3) Education of children in Polish schools abroad: culturalization strategies – feeling of identity – cultural distance – project financed in 2011–2014 by the National Science Centre (NCN) (project supervisor: E. Ogrodzka-Mazur) and (4) Cultural identity and education of learning young adults in selected countries of East-Central Europe (project supervisor: E. Ogrodzka-Mazur). In total, 2300 secondary school learners and B.A. students took part in the studies conducted in 2002–2018.
The respondents’ axiological preferences were established based on the Scheler Value Scale (SVS)\(^2\), which enables one to specify the significance of particular values and their categories (groups) and to compare them to the model Scheler hierarchy. Each of the 50 values of SVS is evaluated separately on an estimation scale of 101 points. Referring the obtained raw results to norms allowed for outlining the profiles of values accepted by learners and university students, as well as for specifying how highly (in comparison to the normative group) they rank particular values.

The profiles of the values, which learners from various types of schools and cultural environments rank most highly, were made on the basis of the analysis of descriptive statistics. This was aimed at comparing them and at specifying the similarities and differences in respondents’ axiological preferences. The data comprised in Figures 1, 2 and 3 show the characteristic (for a social breakthrough) profile of axiological predispositions of the Polish youth in reference to their peers living in, among other countries, Austria, Germany and the Czech Republic. The lack of evident dominating values and the clearly flattened character of the whole structure might confirm that the youth is still not convinced what is important.

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\(^2\) Scheler Value Scale (SVS) consists of 50 values, which make up 6 basic subscales comprising the following values: /H/ Hedonistic (affluent life, erotic love, possessing, pleasure, joy of life, comfort, relaxation, exciting life); /V/ Vital (stamina, physical strength, fitness, body flexibility, cold endurance, hunger endurance); /A/ Aesthetic (elegance, good taste, harmony, order of things, shape proportionality, regularity of lines, good organization); /T/ Truth (intelligence,
Figure 2. The profiles of values highly ranked by youth from the Czech environment (raw data – basic scales and factor subscales)

Figure 3. The profiles of values highly ranked by youth from the German environment (raw data – basic scales and factor subscales)

BASIC SCALES FACTOR SUBSCALES
H – subscale of hedonistic values FPS – subscale of fitness and physical strength
V – subscale of vital values End. – subscale of endurance
A – subscale of aesthetic values SS – subscale of secular sanctities
T – subscale of truth values RS – subscale of religious sanctities
M – subscale of moral values
S – subscale of sacred values
Source: own research.
in their life, as the ranks of values at consecutive positions are spaced at small distances and they can change their places.

Truth and moral values are at their proper position in the structure (in compliance with the objectivistic approach to values, represented in Max Scheler’s phenomenological concept), which also confirms their universal character. There is higher position of this group of values among the Polish youth in comparison to the results of other studies (Youth, democracy and politics: Poland. Survey results, 2018). This may be interpreted as realizing by young people both the significance of knowledge and education in the conditions of a free market economy, and the fact that the quality of acquired qualifications determines their life, their future profession, work, position, living standards, and the fulfillment of their own goals and aspirations.

Yet, an evident revaluing has taken place in the case of religious values. According to James W. Fowler’s model of religious faith, the religiousness of the surveyed youth is at the individual-reflective stage, associated with the emerging self-consciousness of a young person as regards relativity of the inherited religious worldview, alongside the rejection of the authorities which have been recognized so far (2000, pp. 37–61). This situation results in an increasingly critical attitude to almost all areas of life in which a growing up person functions and, at the same time, in developing the ability to reflect on one’s own identity and ideology. In the declarations of Polish respondents from all the examined environments, religious sanctities most often get the highest average among all the groups of values (75.8). For almost a half of the respondents (48.5%), the highest value – out of the 50 comprised in Scheler Value Scale, which can obtain the maximum number of points – is God. Other respondents who declared their attitude to religion as being “a non-practicing believer” or “hesitant in religious issues”, always rank highly other values in this subscale, for instance: eternal life and salvation. Similar axiological preferences are manifested by the Austrian youth. The learners from

Logical thinking, wisdom, objectivity, open mind, understanding, broad intellectual horizons, knowledge); /M/ Moral (goodness, honour, brotherly love, peace, helping others, truthfulness, reliability, sincerity, kindness, friendliness); /S/ Sacred (God, country, nation, independence, homeland, state, patriotism, religious faith, salvation, eternal life). In statistical analyses, apart from basic scales, 4 factor subscales were distinguished. The subscale of vital values breaks into two factor subscales: /FPS/ Fitness and Physical Strength (physical strength, fitness, body flexibility) and /End./ Endurance (resistance to tiredness, cold endurance, hunger endurance). The subscale of sacred values also breaks into two factor subscales /SS/ Secular Sanctities (country, nation, independence, state, patriotism) and /RS/ Religious Sanctities (God, faith, salvation, eternal life) (Brzozowski, 1995, pp. 14–15).
the Czech Republic and Germany have a different, much lower profile of highly rated religious values.

Although in the questionnaire the attitude of the Polish youth to faith, religion and God was unambiguously specified by the highest ranks, the opinions of young people on the role of religion and the Church in their life were rather moderate and even partially contradictory. Some confirm the phenomenon of weakened religiousness both in Poland and worldwide, others emphasize a revival in searching and discovering new symbols of religious faith. In the opinion of 39.4% of respondents, the return to God, discovering Him anew, does not have to mean a return to the Catholic, Protestant, Orthodox or another Church. The institutional renaissance of religion is expressed not only in a return to traditional forms of religiousness, but also in the pluralization of religious life, the sign of which is the birth of new religious movements (sects and cults). Among the youth surveyed in 2018, 28.2% declared attempts to contact other religious groups – in comparison with in 2012–19.4% and in 2002–2006–6.5%. According to the majority of respondents, religion is a private matter of every person. Therefore, as in traditional societies, this does not indicate the whole of the attitude to the world but becomes one of the segments of an individual’s experience. Thus, religion and religiousness are more and more often the values individually (personally) chosen, however – they are losing the rank of values “inherited” only by “being” a member of a particular family or a socio-cultural community (Ogrodzka-Mazur, Szafrańska, Malach, Chmura, 2019).

Secular sanctities go through a kind of crisis. In the social awareness of the respondents surveyed in 2002–2018, these values ceased to be essential elements and fundamental mechanisms which consolidated particular groups and the whole Polish society. What appears here is an obvious tendency to seek a new semantic formula (both in the linguistic and symbolic sphere) for this group of values in the context of the occurring socio-political and cultural changes in Poland, Europe and the world. Thus, such values as the country, nation, independence, homeland, state, patriotism are not very significant for the young generation. However, it can be also assumed that the lack of manifestation of patriotic attitudes by the respondents might result from their lack of feeling any threat to the sovereignty of Poland and other countries.

The general image of axiological preferences of the surveyed youth from Poland shows a decrease in the overall level of the system of values. Yet, we observe a growing tendency to focus on life for oneself, an increasing significance of individual-private values – contrary to society-oriented values – as well as aiming at
self-fulfilment, understood as conduct in compliance with one's potentialities and needs and in rejection of any ideology, including the religious.

**Structure of the axiological reality of Ukrainian youth**

The matrix of the modern youth environment in Ukraine, as well as in Poland, is predetermined by the pancivilizational matters. The first such issue is the balance of life-giving existential components of the human being in the current conditions. Nowadays society faces two ambivalent value orientations. In one respect, it is concerned with universal fundamental values, such as good, truth, mutual respect beauty that are related to the existential component “to be”. On the contrary, the society deals with material, utilitarian values (money, wealth, power) which are invoked from the perspective of governing and consumerism and which comprise the existential component “to have”. Regardless of the country of residence, the youth gives a higher rank to the existential “to have” as compared to the senior generation. The second issue is the (non)perception of the new, the differentiation of the distribution of innovations in society. Modern opinion surveys prove a serious differentiation in the youth environment, as compared to the senior generation, in relation to accepting current developments and the craving for risks. As it turned out, the young generation is far more open to innovations and taking risks than the older one. The third issue includes the amplification and intensification of the social and cultural reality, accompanied by the annihilation of traditions and norms, rapid and overall distribution of mass culture products. The techmarket orientation of modern civilization, having reached a sort of the cult of easiness in all aspects, is of particular interest to the youth. Finally, the fourth issue, being of a local character, is related to the imperfection of the society and the economic instability in Ukraine. In total, it preconditions the peculiarities of the trends in the contemporary Ukrainian society. According to numerous social studies, the major problems the youth is faced with are the following: (a) economic instability in the country (63.3 %); (b) decrease in the population’s living standards (60 %); (c) corruption and incompetence of the ruling authorities (50.5 %); (d) the problem of employment (52 %) and war actions in Eastern Ukraine (49.2 %). In consequence, only 6.5 % of the young feel happy, according to the rates of social negativism. Two thirds of the young people do not see any social prospects in Ukraine (Saukh, 2017, pp. 32–33).
The four matters altogether outline five major trends in the environment of contemporary Ukrainian youth. The first is the dramatic change in value orientation. Everything that is not connected with the principles of governing (honour, compassion, friendship, love, consciousness, etc.) is being pushed into the background and deprived of social and cultural prestige. Thus, the strong influence of morals on everyday behavior is admitted only by 43.7% of the young people. Every tenth young person is not influenced by moral norms, while only 3% of the young generation are concerned with the idea of “a clear conscience” as the prior condition of happiness. As a result, modest social roles do not satisfy the young and are considered to be the loser’s fate. The second trend is the destruction of traditional social and cultural norms and rules of behavior. There is a constant rise in the role of the subcultural component in the youth environment, which constitutes the ground for emerging new social and cultural communities (silver-spooners, liubers, yuppies, ravers, streetworkouts, cyberpunks, hiphoppers, emos, diggers, etc.). These non-formal groups comprise nearly 7% of the youth – they tend towards moral relativism, embrace the cult of physical force, criminal orientation, annihilation of everything created by the previous generations, heterogenocidal behavior. Under the conditions of political instability some non-formal groups become dangerous, as far as they are flexible enough to become an instrument in the hands of radical or extremist political organizations.

The third trend is a decrease in intellectual culture, compensated by mass culture orientation. There is a specific way of perceiving the world through a peculiar system of “intellectual values” constituting the foundation of youth subcultures: the desire to live a life of pleasure, a priority for consumerist orientation and “easy money”, the rejection of social canons and applying the alternative position, which opposes the existing one. Civic engagement is extremely low. About 80% of the youth participate in public organizations, 22% are engaged in politics without expecting high performance of their social and political activity, only 1.9% visit libraries. The youth do not trust the law, moreover, every fifth ignores it. Only 30.6% think that the laws affect their everyday life (Tsinnosti ukrajinskoi molodi..., 2016, pp. 73–75). Unlike the older generation, the youth find justification for avoidance of taxes, robbery, bribery, perjury, unlawful government assistance, etc. At the same time there is a growing interest in religion which helps all layers of the young to solve the problems of morality and spiritual life in the conditions of meaningful traditional sources of axiological consciousness. Over 50% of young people pray and go to church. The number of young believers increases annually.
The fourth trend – the transformation of the spare time sphere in youth’s life – is often accompanied by criminalization, owing to alcohol, drug or crime abuse. Large parts of Ukrainian young people (28.4%) spend their free time outdoors and in night clubs. Over the last 10 years, the number of drug addicts has increased 6–8 times. In the communication aspect, the sphere of youth’s spare time is even more vulnerable – the processes of computerization and commercialization are even more rapidly developing. E-communication increases the opportunities of creative activity, fulfils informational, educational and cultural demands, and opens an unlimited space for socializing and self-expression. However, this is often related to financial fraud, hacking, misinformation, seduction (porn industry, computer games etc.), promoting violence, neglecting the ethic norms of behaviour. The fifth trend focuses on establishing and developing a new digital “Z-generation” imbued with a spirit of hedonism, easily harmed, denying the thought-leaders, tending towards freedom and individual life space. A sense of responsibility not only for oneself, but also for the surrounding world is a characteristic feature of this generation. Zs possess large-scale information, take innovations easily and implant the knowledge from one sphere to another. They skillfully combine spontaneity, mature abilities and understanding of the depth of life. There are no boundaries for this generation. Despite the fact that the age of the young varies from 14 to 20, they are extremely responsible and serious and have a conscientious attitude towards justice as well as gender, race and social equality.

At the same time, the opinion surveys have proved that a large part of Ukrainian youth treats traditional values as the top priority. The first three positions in the hierarchy of values are: family happiness (71.7%), health (55.8%) and career (48.1%); 44.9% of the young want to live in Ukraine and do not plan to emigrate (Saukh, 2017, pp. 30–36). Thus, the vast majority of young Ukrainians (88%) want their country to be subjected to dramatic large-scale changes.

Conclusions

The surveyed youth is quite diversified due to qualitative, social and economic characteristics, pertaining not only to certain categories and social groups but also to regions. Most generally, there are no grounds to criticize or to idealize the youth. As regards its highly differentiated scales of values, the self-awareness of the conflict merely reflects the tectonic movements in the economic, social and cultural spheres of Ukrainian life. The youth’s perplexity is a natural result of their lack of experience. The young observe the conflicts, paradoxes and calamities
of the society from the outside, and therefore they initiate social changes. This is an objective fact to face and to understand. However, to make these changes grounded and constructive, a brand new algorithm is needed of the state for youth policy that must be based on an up-to-date educational system.

Considering all the aspects mentioned above, the following steps are to be taken urgently:

- to initiate a number of reforms in social politics and education, providing or re-establishing a system of social lifts, i.e. mechanisms that enable an increase in the social and economic status of the young people, and determine their career development alongside their abilities and competence;
- to form a flexible educational system based on the ideas of the so called “new humanism”, aimed not at idealizing humanity or denying the antihumanity, but at accepting the fact that all the people are bound in the good and the bad. Thus, youth consumerism should not be criticized by means of moral arguments, the youth should rather be equipped with the skills and abilities to provide the conditions for existence: “to have” for the sake of “to be” in the context of human dignity;
- to redirect the academic and educational process from the partial (intellectual, moral, national and patriotic, aesthetic, physical, etc.) education of a young person to holistic intellectual education. This should lead to empathy which prevents offences, hatred, cruelty, aggression, stress, and pessimism;
- to concentrate the efforts of the academic and educational system not only on training creative innovators capable of solving complex problems or operating the principles of “tying up” the knowledge and providing it with a new sense, but also on turning this knowledge into life wisdom which will become a cognitive expertise of all fundamental life practices.

References


Abstract

The study aimed to measure and explore the ability of physical education teachers to apply the new developed curricula according to the knowledge economy in Irbid Governorate schools. The sample of the study consisted of (120) male and female teachers from Irbid district, following validation, the teachers were provided with a questionnaire which included two fields; knowledge economy and information technology. The results showed that the ability of physical education teachers in applying the new curricula in the field of the knowledge economy and information technology was high, although the field of information technology ranked first, followed by the field of knowledge economy. Also, there were significant differences according to variable of experience when measuring the ability of physical education teachers in the domain of information technology in favor of the group with 10 years and more experience. However, there were no statistically significant differences in the variable of experience in the domain of knowledge economy. The study suggests reviewing the mechanism of applying the new developed curriculum according to the knowledge economy, and holding training sessions before and after starting to build a new curriculum. Conducting information technology courses in accordance with new curricula are suggested, and also that the Ministry of Education in Jordan must provide the necessary facilities, such as halls and technology devices.

Key words: Measuring, Abilities, Teachers, Physical Education curriculum, Information Technology, Knowledge Economy
Introduction

Physical education is an important part of the education process and is an integral part of the public educational system. It aims to develop individuals cognitively, physically, emotionally and socially through practicing different types of physical activity that are chosen according to scientific principles. The curriculum in physical education is an effective means used by different educational organizations to achieve their outcomes and future aspirations as they form the main aspect of the educational process. The new curriculum in Jordan, as stated by the Ministry of Education, is to establish the use of computers and encourage teachers to use them to support curricula in each subject, thus motivating students to adopt a new mechanism to set outcomes and to meet their interests, and in this way making the teacher more responsible for facilitating learning, rather than being a source of knowledge. It also allows the teacher to take into account individual differences. From the viewpoint of the researchers, the problem of the study is trying to measure and explore the ability of physical education teachers to apply the new developed curricula, according to the knowledge economy. The new curriculum should be taking into account that the curriculum of physical education must employ technology within the knowledge economy both physically and skillfully. The application needs to be more serious, from both teachers and supervisors who manage these developed curricula, as there is dissatisfaction with the mechanism of implementation by the school administration and supervisors.

Research Problem

The problem of the study comes from the weakness of the ability of physical education teachers to use modern techniques and keep up with developments in strategies, curricula and teaching methods, especially those related to information technology and the knowledge economy. So this study was conducted to measure and explore the ability of physical education teachers to apply the new developed curricula according to the knowledge economy in Governorate schools.

Research Focus

Previous educational literature relating to English and Arabic studies concerning the development of curricula such as Philips, 2006; Goudas et.al, 2006; Elliot, 1981; John, 2004; William, 1975; Molebash, 1999; Wingard, 2000; Deiry, 1993; Baley & Field, 1970; Brown & Brown, 1970; Cssidy, 1963; Deiry, 2003; Morgan, 2008; MacKenzie, 1969; Nash, 1984; Singer, 1974; Willgoose, 1979; Wingard, 2000;
Davis & Waillis, 1962; Annarino et.al, 2000, stressed that curriculum development in any country in the world is the key to serve the educational process and to make students and teachers very familiar with the knowledge economy and information technology. The new curriculum in Jordan should establish and encourage teachers to use sophisticated equipment to support curricula in each subject and to help students to live in the modern world to achieve their outcomes and future aspirations as they form the main aspect of the educational process. Since the Ministry of Education is the primary agency charged with task of equipping the individual with a life time of effective living and learning, it must provide a program which will allow students to deal effectively with the world in which they live, as well as a yet unknown one which is certain to converge upon them with dramatic suddenness. Therefore, when planning, designing and developing educational curricula for the future it becomes urgent to gain understanding of future requirements and to learn to cope with these in an orderly and efficient manner.

However, the importance of this study is that the new curriculum in Jordan should encourage teachers to use computers to support curricula in each subject, to make them change to a more learner-centered approach and to allow them to take individual differences into account.

**Methodology of Research**

**General Background of Research**
A descriptive study utilizing survey methodology was used as appropriate to achieve the objectives of the study.

**Research Sample**
The target population of this study consisted of all P.E teachers working in Irbid governorate in Jordan (N=161). The sample includes (120) male and female P.E teachers which was randomly selected and represents 75% of the population.

**Instrument and Procedures**
A mixed – methods design (qualitative and quantitative) was used to validate the results. The researchers used the interview and questionnaire methods. A guided interview included (15) open ended questions covering two fields (infor-
mation technology and knowledge economy) were utilized to gain the information from (10) experts interested the curriculum of physical education. Krueger and Casey, 2014 and Morgan, 1988 noted that evidence from an interview is a strong qualitative research method.

Moreover, the researchers designed a 15–item questionnaire to identify ability of physical education teachers to apply the developed curricula according to the knowledge economy. The questionnaire was divided into two domains: The first domain: knowledge economy, included (7) items and the second domain: information technology, included (8) items; items of these instruments were found in appendix (1).

All (15) items were following Likert type scale ranging from 5 (very high) to 1 (very little).

The following classification was used to evaluate the means of aspects: (Less than 1.5 – very low; 1.5–2.49 – low; 2.5–3.49 – moderate; 3.5–4.49 – high; 4.5–5 – very high) (Einaeh, (2000); Al Batsh & Abu Zeina, (2006).

**Scientific indices of the instrument:**

Content validity was performed through asking a panel of (10) experts in the P.E. faculty member at Jordanian universities, to review the questionnaire and provide feedback on the items and domains. The researchers then modified the questionnaire according to the expert’s comments. The reliability coefficient was calculated using Cronbach Alpha and test-retest method. The correlation coefficient value was (0.89) and the internal consistency coefficient (Cronbach Alpha) was (0.85).

**Data Analysis**

Means, and standard deviations were used to answer the first research question, while an Analysis of variance test (ANOVA) was used to answer the second research question. The questions are given in the next section.

**Results of Research**

The first research question for this study was to determine the level of physical education teachers’ abilities in applying the new curricula according to Information Technology and knowledge economy to answer this question, means and standard deviations as well as evaluation degrees were used to answer the research question. Results are presented in table (1).
Table 1. Means, standard deviations, degree of evaluation for information technology and knowledge economy domains

<table>
<thead>
<tr>
<th>Rank</th>
<th>No.</th>
<th>Domain</th>
<th>Mean</th>
<th>Std.deviation</th>
<th>Degree of evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>Information Technology</td>
<td>4.14</td>
<td>0.55</td>
<td>High</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Knowledge Economy</td>
<td>3.86</td>
<td>0.64</td>
<td>High</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>4</td>
<td>0.197</td>
<td>High</td>
</tr>
</tbody>
</table>

Table (1) shows that all of the evaluation degrees of the level of physical education teacher’s abilities to apply the new curricula according to Information Technology and knowledge economy were high. Also, the degree of evaluations as a whole were rated high, with a mean of (4) and a standard deviation of (0.197). The domain of information technology according to the data-collection method came first with a mean of (4.14) and a standard deviation of (0.55), whereas the domain according to the knowledge economy ranked second with a mean of (3.86) and a standard deviation of (0.64). This high degree referred to lack in abilities to apply the new curricula including Information Technology and for the knowledge economy by physical education teachers.

Table 2. Responses from the interview of experts for the field of Information technology

<table>
<thead>
<tr>
<th>No.</th>
<th>Domain</th>
<th>Yes %</th>
<th>No%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Do the teachers face difficulties in using the budget allocated for purchasing technological equipment?</td>
<td>72</td>
<td>28</td>
</tr>
<tr>
<td>2</td>
<td>Are the teachers using modern technology in teaching various sports skills?</td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>Do teachers face difficulties in using modern technology to explain different sports skills?</td>
<td>68</td>
<td>32</td>
</tr>
<tr>
<td>4</td>
<td>Are there gyms to show the educational materials?</td>
<td>65</td>
<td>35</td>
</tr>
<tr>
<td>5</td>
<td>Do teachers face a shortage of facilities and equipment for the students?</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>6</td>
<td>Do teachers face difficulties to analyze and give comments on the materials presented?</td>
<td>58</td>
<td>42</td>
</tr>
<tr>
<td>7</td>
<td>Do teachers face difficulties in using modern technology and applying it in teaching and evaluation strategies?</td>
<td>55</td>
<td>45</td>
</tr>
<tr>
<td>8</td>
<td>Are teachers willing to use and improve teaching strategies?</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>60</td>
<td>40</td>
</tr>
</tbody>
</table>
From the table it can be seen that the percentages of experts’ opinions from the interview on the field of information technology were between (50–72%) indicating that the percentage is high. The highest question was (1) “Do the teachers face difficulties in using the budget allocated for purchasing equipment in physical education”, while the lowest question was (8) “Are teachers willing to use and improve teaching strategies?”

Table 3. Responses of the interview of experts for the field of knowledge economy

<table>
<thead>
<tr>
<th>No.</th>
<th>Domain</th>
<th>Yes %</th>
<th>No%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Teachers of P.E are focused on raising the physical efficiency to carry out the required work</td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>Teachers have difficulty applying different strategies in P.E lessons</td>
<td>65</td>
<td>35</td>
</tr>
<tr>
<td>3</td>
<td>Teachers spread proper awareness of the need to reduce negative behaviors in competitions</td>
<td>62</td>
<td>36</td>
</tr>
<tr>
<td>4</td>
<td>Are there any difficulties in developing and using different tools to facilitate the P.E lesson?</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td>Are there any difficulties in applying different strategies in P.E lessons?</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>6</td>
<td>Is there any lack in using and applying visual aids in P.E lesson?</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>7</td>
<td>Are there any difficulties in using technical aspects in different skills in P.E lessons?</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Total overall</td>
<td>60</td>
<td>40</td>
</tr>
</tbody>
</table>

From the table it can be seen that the majority of teachers in physical education do not have knowledge of the fundamentals of teaching strategies, in physical education in the field of knowledge economy. The average of the answers of the question ranged between (40–70%), question (1) “Are the teachers of P.E not focused on raising the physical efficiency to carry out the required work?” has the highest percentage (70%), whereas the lowest percentage (40%) was for question (7) “Are there any difficulties in using technical aspects in different skills in physical education lessons.”

By reviewing the results, we can see that there is a high agreement between the results of the survey sample and the results of the experts’ interview. Both found a lack in the level of physical education teachers’ abilities in applying the new curricula using Information Technology and knowledge economy.

The second research question for this study was to determine the impact of gender, and experience on the abilities of physical education teachers in applying
new curricula. An analysis of variance test (ANOVA) was used to answer the research question. This is shown in Tables (4–6).

**Table 4.** Means and Standard deviations of experience variable

<table>
<thead>
<tr>
<th>Domain</th>
<th>Experience</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Economy</td>
<td>less than 5 years</td>
<td>27</td>
<td>3.84</td>
<td>0.781</td>
</tr>
<tr>
<td></td>
<td>5 to 10 years</td>
<td>18</td>
<td>3.90</td>
<td>0.682</td>
</tr>
<tr>
<td></td>
<td>10 years and more</td>
<td>75</td>
<td>3.86</td>
<td>0.589</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>120</td>
<td>3.86</td>
<td>0.645</td>
</tr>
<tr>
<td>Information Technology</td>
<td>less than 5 years</td>
<td>27</td>
<td>3.85</td>
<td>0.702</td>
</tr>
<tr>
<td></td>
<td>5 to 10 years</td>
<td>18</td>
<td>4.08</td>
<td>0.468</td>
</tr>
<tr>
<td></td>
<td>10 years and more</td>
<td>75</td>
<td>4.26</td>
<td>0.476</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>120</td>
<td>4.14</td>
<td>0.555</td>
</tr>
</tbody>
</table>

**Table 5.** Analysis of variance test (ANOVA) for the impact of the gender, and experience in the abilities of physical education teachers in the application of curricula

<table>
<thead>
<tr>
<th>Domain</th>
<th>Source</th>
<th>S.S</th>
<th>D.F</th>
<th>S.M</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Economy</td>
<td>In Group</td>
<td>0.044</td>
<td>2</td>
<td>0.022</td>
<td>0.053</td>
<td>0.949</td>
</tr>
<tr>
<td></td>
<td>Between Group</td>
<td>49.441</td>
<td>117</td>
<td>0.423</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>49.486</td>
<td>119</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Technology</td>
<td>In Group</td>
<td>3.363</td>
<td>2</td>
<td>1.682</td>
<td>5.913</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>Between Group</td>
<td>33.274</td>
<td>117</td>
<td>0.284</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>36.638</td>
<td>119</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4 results show that there are no significant differences in the field of knowledge economy, whereas there are significant differences in the field of information technology. This result is logical, as it is indicating that there are difficulties in measuring the ability of physical education teachers to apply the developed curricula in the knowledge economy. This is due to the lack of training courses, and lack of teacher access to the concept of information technology to serve the teaching environment. To examine these statistical differences between the groups on the experience variable, Sheffe Tests were used to compare and detect these statistical differences.

Table 6 shows that the source of the differences was between experience of 10 years and more, and experience of less than 5 years with a benefit for experience of less than 5 years.
Table 6. Sheffe test results for post comparisons for abilities which have differences according to experience

<table>
<thead>
<tr>
<th>Experience (I)</th>
<th>Experience (J)</th>
<th>Mean Difference (I-J)</th>
<th>S.E</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 5 years</td>
<td>5 to 10 years</td>
<td>-0.236</td>
<td>0.162</td>
<td>0.316</td>
</tr>
<tr>
<td></td>
<td>10 years and more</td>
<td>-0.408*</td>
<td>0.120</td>
<td>0.003</td>
</tr>
<tr>
<td>5 to 10 years</td>
<td>less than 5 years</td>
<td>0.236</td>
<td>0.162</td>
<td>0.316</td>
</tr>
<tr>
<td></td>
<td>10 years and more</td>
<td>-0.172</td>
<td>0.140</td>
<td>0.440</td>
</tr>
<tr>
<td>10 years and more</td>
<td>less than 5 years</td>
<td>0.408*</td>
<td>0.120</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>5 to 10 years</td>
<td>0.172</td>
<td>0.140</td>
<td>0.440</td>
</tr>
</tbody>
</table>

Discussion

The Ministry of Education in Jordan is making efforts to modernize and develop the curriculum in light of the draft educational development in accordance with the Knowledge Economy (ERFKE, Education Reform For Knowledge Economy), and extend use of information technology communication (ITC) in the entire region, so as to create a generation of learners who are able to deal with the requirements of present and future.

The result of our study shows that the physical education teachers in schools are failing to apply the curricula developed according to the knowledge economy in Irbid governorate schools under the general development taking place in Jordan, which includes information technology. The use of information technologies in developing a new curriculum was ranked first and is found to be highly valued in this study, which is different from other research. Kurdy (1996) showed that physical education teachers viewed the then-curriculum as reducing the importance of physical education, and felt it should focus more on mass games, and they expressed a need for more training sessions for teachers.

In the field of information technologies our results agree with Johan, (2004), and William, (1975), Elliot (1981), Abweeni, (1990), Mesmar (2001), and Dakestani, (2004) who showed the clear weakness of teachers of physical education in the use of equipment in teaching in the school. This may be explained by the fact that there are no real partnerships with the Ministry of Education, because there is no appropriate infrastructure for information technologies, and so there was an inability to apply the developed curricula in this field.
The second field, knowledge economies in developing a new curriculum, was ranked the second, and our results agree with Sowtary, (2005); Molebash, (1999); Wingard, (2000); Annarino & Hazelton, (2000); and Demmons, (1995). These results are logical, indicating that there are difficulties in measuring the ability of physical education teachers to apply the developed curricula towards the knowledge economy. The results of this study differed from the result of a study by Thomas and Beaudoin (2002) and Singer and Dick (1974), which showed that the curriculum does not give students basic information about the curriculum and programs take into account integration of educational experiences. Our results are completely different and also disagreed with studies by Obu altaib (1975) and Ibrahim (1992) which point out that schools lack equipment, sports equipment, special curricula, and claim that most pitches are not available. Our results also disagreed with Al Tawarah (2019) who pointed out the lack of equipment and playgrounds in schools.

Concerning the variable of experience, our results showed that there are no significant differences in the field of knowledge economy; on the other hand the Sheffe test showed significant differences in the field of information technology. This is due to the lack of training courses, and lack of access for teachers to information technology for use in the teaching environment.

Our results concerning the experts’ interview showed that the teachers faced difficult in purchasing facilities and equipment to improve the learning process in physical education. On the other hand, there was a high agreement between the survey sample and experts interview results in information technology and knowledge economy. There were also noted the lack of ability, and teaching strategies in the field of knowledge economy. Also, the new curricula was not always applied by physical education teachers in the Jordanian schools.

From our point there should be an extra training for the supervisors and physical education teachers, to be more serious to manage these developed curricula and to be aware of how to solve the problems. More than this, there should be conducted quantitative studies about the problems encountered by physical education by the Ministry of Education.

All in all, our results showed that there were many obstacles and resistance from physical education teachers (Christine & Christine 1971; Brown and Cassidy, 1963) in applying and implementing the development curricula in physical education. Also our results showed that if the Ministry of Education wants to change the curricula in Jordan, these curricula must be compatible with the Jordanian environment and should be commensurate with the potential of the economy of schools and also take into account the conditions of the teachers.
Conclusions

The study showed weakness in the abilities of physical education teachers in applying the developed curricula according to the knowledge economy. The results also showed that the experience variable had no effect on the knowledge economy domain, whereas it did have an effect on the information technology domain, where it was found that the teachers who had more experience face more difficulties in applying the developed curricula.

References


Appendix (1)

The questionnaire items of physical education teachers ability to apply the developed curricula according to the knowledge economy

First field: information technology

<table>
<thead>
<tr>
<th>no</th>
<th>items</th>
<th>very high</th>
<th>High</th>
<th>moderate</th>
<th>Little</th>
<th>very little</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lack of availability of equipment and tools used in teaching in schools</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>There are no specialized halls to display the educational materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Teachers do not use modern technology to explain different sport skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Not employing modern technology in learning various sport skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Lack of budget allocated for purchasing technological equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Teacher’s unwillingness to use teaching strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>The inability to analyze and comment on the materials presented</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Lack of modern technology use in teaching and evaluation strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Second field: knowledge economy

<table>
<thead>
<tr>
<th>no</th>
<th>items</th>
<th>very high</th>
<th>High</th>
<th>moderate</th>
<th>Little</th>
<th>very little</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lack of facilities and equipment to produce different educational aids</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Lack of scientific expertise in the development and use of different tools</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Not focusing on raising the physical efficiency to carry out the required work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Absence of the mechanism of spreading proper awareness of sport to reduce negative behaviors in competitions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Difficulty in understanding teaching strategies in sports</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Difficulty in applying different evaluation strategies in sports</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Lack of clarity in the technical aspects of the performance of skills in various sports</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
“Multilingualism is the Real Thing”: Multilingualism from the Parents’ Perspective

DOI: 10.15804/tner.2019.57.3.07

Abstract

Language heterogeneity in the classroom is quite a common phenomenon. For experts, it is a challenge; for teachers and parents, it is most often a problem. This challenge or problem will be discussed on the basis of the theory of multilingual education and migration pedagogy. The aim of this contribution is to present an app that can be regarded as a universal tool for fostering multilingualism and explaining it from the viewpoint of parents, since they are an important but often ignored aspect of multilingual education. The research analysis will illustrate and interpret the research results of a qualitative study in which parents from different countries participated. It is not country specific, but it highlights the key aspects that can foster multilingual education and that at least partly match with the underlying theory.

Keywords: Multilingualism, language heterogeneity, language learning, parents’ perspective, Kuarki app

Introduction

“You are lucky if you have a class of 25 students and only 10 different mother tongues,” said a teacher at a school in Germany. Nowadays, the various degrees of language heterogeneity in classes confronts teachers of linguistic and non-linguistic subjects with new didactic and pedagogical challenges (Klein 2016, Mercatorstiftung 2016). For those who deal with multilingualism, language
heterogeneity in the classroom is a challenge in the fields of research, concepts, pedagogy and didactics; for language teachers, it is often a dilemma, a gap, an obstacle or even a problem. That is because they have to guide, direct and teach all students irrespective of their home language\textsuperscript{1} and foster them to reach the prescribed minimum standards of knowledge in a language that is not their usual communication tool. It must be remembered that, for students learning non-linguistic subjects, the language of instruction is important, if not decisive, for acquiring new content/knowledge, since the medium of communication is the language of instruction and not their home language. For teachers, there is no unique concept for working under such circumstances; therefore, teachers often have to rely on recommendations from fellow teachers, and on their own feelings, ingenuity and pedagogical-didactic flexibility. While learning in the language of the environment, multilingual learners must learn their home language, but this learning is often subordinated to the language and culture of the environment.

The aim of the contribution is to present an app developed within the framework of the project “Travelers Between Wor(l)ds”\textsuperscript{2}, through which learners can learn or extend their ability to read and understand their native language, as well as the language of instruction/environment and/or a foreign language. The selection of languages is limited to Slovene, Russian, Romanian, Lithuanian, German and English. In the following, the authors will focus on the views and opinions of parents from different countries who live with multilingualism and who shared their experiences with multilingualism within this project in the form of guided interviews. A qualitative content analysis of their statements revealed interesting findings, only partly coinciding with theory and partly not. These findings cannot be generalized, as the number of participants was too small, but there is no doubt that there is a need for reflection and discussion in the preparation of educational concepts of multilingualism. Firstly, the opinions of the parents and the app itself will be analysed based on the theory of multilingual education and migration pedagogy and, secondly, the app will be presented in more detail.

\textsuperscript{1} The authors use “home language” and “language of the environment” in order to avoid the terms (1) \textit{native language} and \textit{foreign language}, as these are often inappropriate according to their meaning; (2) \textit{first, second, third etc. language}, since the order of learning the languages is not important at all; (3) \textit{dominant language}, since the domination of a language is changing all the time, and (4) \textit{additional language}, as there is a dilemma around claims of which language is the “additional” one.

\textsuperscript{2} “Travelers Between Wor(l)ds” is an Erasmus+ project (2016–2019; VG-IN-BE-16–36–02306) with 9 partners from 5 countries (Germany, Slovenia, Lithuania, Romania, Slovakia).
Pedagogical-didactic reactions to classroom heterogeneity

Overcoming language heterogeneity in the classroom becomes a special challenge for each teacher with each new class. There is no universally successful methodological-didactic path; nevertheless, there have been various models and suggestions, even new pedagogics and didactics developed. In addition to intercultural pedagogy, a new branch of pedagogy has evolved, migration pedagogy, the more prominent representatives of which are Paul Mecheril, Maria to Mar Castro Varela and Inci Dirim. Migration pedagogy is a young science that developed at the beginning of the 21st century in the context of the cultural and sociological sciences based on the critique of intercultural pedagogy, and claims to be a special school of pedagogy. Nowadays, migration is a global phenomenon appearing in a range of contexts. In contrast to intercultural pedagogy, which focuses on the differences between languages and cultures, migration pedagogy focuses on migration, on the processes that initiate migration and on the process of belonging. It is an analytical-reflexive science coping not only with migration and migrants, but also with all members of the migration society. Migration pedagogy offers the potential for theoretical analysis and transformation of power enforcement. The pedagogical concepts of migration pedagogy highlight an important goal, that is, the promotion of learning and teaching processes, which, as far as possible, circumvents “othering” (Arens & Mecheril, 2009). Some of the concepts have evolved from practice, some from theory and some from a combination of both. They have been proven, but they are effective only under certain circumstances, however, these circumstances are, in practice, always an original and unrepeatable combination of various factors. These include the type and number of languages in the classroom, the prevailing, favourable or less favourable language policy in an environment, as well as the professionalism and flexibility of the teacher.

Finding resources and effective concepts is very productive, especially in environments where multilingualism is already a tradition, if not a norm in education, work and people’s daily lives, such as in Switzerland. A characteristic of the Swiss concepts is that they are very specific and bound to the unique Swiss context; it was found, however, that they can form an important basis that can be adapted, upgraded and modified according to other circumstances.

In this contribution, the authors summarize a model by Berthele (2017) that systematically depicts possible pedagogical-didactic responses to linguistic and

---

3 The unique Swiss context includes the geographical, political, linguistic, sociolinguistic and ultimately, economic factors that create it.
cultural heterogeneity in the classroom. Interestingly, these responses can be both productive and counterproductive to multilingualism in the classroom.

As can be seen from the diagram, linguistic heterogeneity in the classroom can be the result of dialects, migration, and especially in Switzerland, sociolects. In the diagram, migration as a reason for language heterogeneity in the class is marked and identified as a problem. According to the model, this problem can be solved in three different ways: The society either (1) takes no action and does not face the problem, or (2) takes action and seeks compensation options, or (3) tries to influence the valid norms. If the society is looking for compensation options, this may mean introducing early learning of the dominant language, developing language competences in one language only and eliminating some educational possibilities (particularly for specially gifted students). The decision to try to influence valid norms opens at least two additional routes: on the one hand, the restriction of multilingualism, by introducing a monolingual norm, or, on the other hand, the enforcement of pluricentric and multilingual norms.

Most uninformed pedagogical-didactic measures address multilingualism by essentially reducing the heterogeneity of language competences and thus reintroducing the “Monolingual habitus” (Gogolin 1994) into educational contexts, which Ingrid Gogolin questioned three decades ago. Another possibility for influencing norms is to enforce multilingual norms, suggesting the acceptance and positive

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**Figure 1.** Adapted from Berthele R. (2017): Language heterogeneity and school
connotation of language heterogeneity. This is called the “reflexive multilingual habitus”, which is a more recent theory supported by the migration scholar Inci Dirim (Dirim 2016).

The ERASMUS + project Travelers Between Wor(l)ds and its products support the shift from monolingual norms to multilingualism and multilingual norms. The app Kuarki and the related documents (statements by parents and their analysis, a manual for teachers and parents, recommendations from parents for parents) seek to prepare a pathway for practice (see http://kids.lingvo.info/en).

The Kuarki App

The app is designed as a learning aid that will motivate students to take an early and successful journey into the world of multilingualism, thus leveraging linguistic skills in one of the selected languages. The app’s texts are interesting and informative stories from the world of science. These texts, which can be classified as popular-scientific texts, are visually supported by original authorial illustrations that were created exclusively for the needs of the project. The texts are intended for reading, but they are also didactic. This means that there are prepared tasks, exercises, puzzles, riddles and word games that the students solve interactively.

The learning app is suitable for tablets and mobile phones. Students and parents can use it for free and independently at home, while teachers can actively integrate it into the teaching process in their language classes and selected natural science classes. By using the app, students practice and improve their reading and writing competences in the chosen language; in addition, they get rewards for their knowledge of science, become acquainted with the diversity of languages and develop their ICT competences.

Empirical research

Research questions

In the empirical part, the views of parents collected by the authors in the framework of the project will be presented with the intention of analysing and illuminating multilingualism from a more practical point of view. The research questions that guided this study were as follows:

- What kind of experience do parents, who themselves grew up multilingual, have with multilingualism?
What kind of experience do parents have with their children’s multilingual education?
To what extent does the parents’ experience coincide with the theoretical findings concerning multilingualism?

**Research method and sample**

The analysed corpus consisted of 18 documents, comprising parents’ written statements on their experience with raising multilingual children. The format was open, and the parents mostly chose the text type description. The parents wrote their statements (the descriptions) in a range of languages, i.e. German, Slovene, Slovak, Russian and Romanian. For research purposes, where the language was not German or Slovene, the statements were then translated into German. The corpus of texts was analysed qualitatively, focusing on content; the authors defined concepts and categories, ranked them and documented them with illustrative statements. Despite the quantitative limitations of the study, which analysed only 18 documents exclusively from those countries whose members participated in the project consortium, it was found that the views of parents who have direct experience of multilingualism are very comparable and not always consistent with theory.

**Data collection procedure**

The authors collected data in the countries whose partners were involved in the project *Travelers Between Wor(l)ds*. The study was carried out by means of a questionnaire, which consisted of an open-ended question with two sub-questions. Many parents were invited to participate, but only some responded. Thus, the final collection consisted of 18 statements that were written thoughtfully and mostly comprised more than a page. An interesting feature is that the content of the statements was so comparable that, after the translation of the texts into German, it was difficult, if not impossible to tell where they originated.
Data analysis and interpretation

Languages and language combinations in the statements analysed

In the corpus of statements, the authors first identified how many and which languages the students were speaking and learning, and what the language combinations being learned and spoken by the students were.

Table 2. Survey on language combinations in the statements analysed

<table>
<thead>
<tr>
<th>Language or languages, spoken at home</th>
<th>Languages, spoken and learnt at school</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russian</td>
<td>Polish</td>
</tr>
<tr>
<td>Arabic</td>
<td>German</td>
</tr>
<tr>
<td>Russian/German</td>
<td>German</td>
</tr>
<tr>
<td>Russian</td>
<td>German</td>
</tr>
<tr>
<td>German/Russian/Turkish</td>
<td>German</td>
</tr>
<tr>
<td>Russian/German</td>
<td>Russian/German</td>
</tr>
<tr>
<td>German/Hungarian</td>
<td>German/Romanian (foreign languages: English, Spanish)</td>
</tr>
<tr>
<td>German/Slovak</td>
<td>Slovak</td>
</tr>
<tr>
<td>Slovak</td>
<td>German</td>
</tr>
<tr>
<td>Slovak/Czech</td>
<td>Swedish</td>
</tr>
<tr>
<td>Slovak/French</td>
<td>Dutch/German/French</td>
</tr>
<tr>
<td>Czech/Esperanto</td>
<td>Czech</td>
</tr>
<tr>
<td>Slovene/German</td>
<td>Slovene (foreign languages: English, German)</td>
</tr>
<tr>
<td>German/Slovene</td>
<td>Slovene/German</td>
</tr>
<tr>
<td>Hungarian/Slovene/German</td>
<td>Slovene/Hungarian (foreign languages: English, German)</td>
</tr>
<tr>
<td>Bulgarian/Slovene</td>
<td>Slovene (foreign languages: English, German)</td>
</tr>
</tbody>
</table>

As evident from Table 2, as many as 18 different languages are mentioned in the statements. These languages belong to different language groups, ranging from Germanic to Slavic, Romance, Finno-Ugric and even to the artificial language of Esperanto. The language combinations are also very interesting, specific and unique. While for most children, multilingualism means two or three languages, the statements also speak of children who are dealing with five or even six languages in their lives. The status of these languages varies, whether they speak the languages at home or at school, or learn them as foreign languages at school. Despite careful analysis, no language combining principle can be identified. We
can only state that this case study provides ample testimonial to how diverse, interesting and endless “living multilingualism” can be.

**Qualitative analysis of parts of the parental statements**

<table>
<thead>
<tr>
<th>Categories</th>
<th>Rank</th>
<th>Concepts</th>
<th>Sample statements</th>
</tr>
</thead>
</table>
| SLOWER SPEECH DEVELOPMENT           | 1    | panic, shyness, later start of speaking | From experience I can say, don’t panic if a child growing up with multiple languages starts to speak later than other children.  
The child was shy and didn't speak for a long time. |
| PRINCIPLE "ONE PERSON, ONE LANGUAGE" | 1    | parents, consistency, separation of languages when speaking | You have to stick strictly to one rule: One person always speaks one language. My children know that each parent speaks another language with them, and the teacher at school speaks a different language.  
You have to separate the languages consistently, e.g. Mom speaks one language, the father another one. |
| BI- OR MULTILINGUALISM AS HUMAN POTENTIAL | 2    | advantage, travel, self-confidence, parallel use of multiple languages, self-evidence of multilingualism | It is a big advantage if children speak different languages and can talk freely. We travel a lot and my children became more confident.  
My children use more than three languages per day in parallel and it is no problem for them. It seems natural to them. |
| MULTILINGUALISM AS ENCOURAGEMENT FROM THE PARENTS | 2    | concern for multilingualism, friends, parental engagement | In addition, you have to take care of multilingualism; you have to make sure your children have friends in both languages.  
Multilingualism is the right thing, so, dear parents, encourage your multilingual children. |
| MULTILINGUALISM AS REQUIREMENT OF THE PARENTS | 3    | equality of languages, effort, perseverance, patience | Every language should be given the same opportunity; this is not easy and requires a lot of effort and perseverance. But the parents must insist and never quit.  
[...] you must endure and not quit, even if it does not appear to be working - bilingual education requires a lot of patience, but it ultimately pays off. |
### Categories

<table>
<thead>
<tr>
<th>Categories</th>
<th>Rank</th>
<th>Concepts</th>
<th>Sample statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESPECT</td>
<td>4</td>
<td>respect</td>
<td>A multilingual upbringing that respects the diversity of languages and cultures is a very good basis for the education of the child, since it encourages tolerance and respect for others and different cultures.</td>
</tr>
<tr>
<td>FOR LIN-GUISTIC (f=2) AND CULTURAL DIVERSITY</td>
<td>4</td>
<td>diversity of languages, tolerance, openness</td>
<td>[Children] are generally very open to other languages.</td>
</tr>
</tbody>
</table>

In their statements, most parents highlighted findings that belong to the most frequent category *slower speech development*. In theory, the fact that multilingual children speak later and that they mix languages at a certain stage is an indispensable part of linguistic development (Pinter 2011, Cook 2016). Some parents are very concerned about this, and they also take steps to abolish multilingual upbringing. The theory and the experience of other parents can significantly help concerned parents to be tolerant, to understand that this is a transitional phase and to continue with multilingual education. The next most frequently represented category, derived from the statements of the parents, is the principle “one person; one language”. With this, the parents confirmed another important principle of multilingual education: that a particular language be linked to one person. If the caregiver mixes languages, the child may become confused, and that can influence the child’s development counterproductively. Most parents have a positive experience with multilingualism, so they treat the ability to speak more languages and bi- or multilingualism as representing *human potential*. Statements in which this potential is explicitly or implicitly stated fall into third place among the categories identified. The next two categories, which are approximately equally represented in the ranking, are especially interesting for interpretation: *multilingualism as encouragement from the parents* and *multilingualism as requirement of the parents*. While the first promotes and advocates multilingualism in children, the second is demanded from the children. Although this may sound like compulsion, or like authoritative parenting, there is probably a hidden necessity of life behind it. Most parents who wrote these statements have their own experience of multilingualism and migration and link this experience to the struggle to survive, so their children have no choice from the start. Concerning this last category, there are deviations from the theory, where experts mostly talk about encouragement, support and multilingualism as a natural phenomenon (Tracy 2007). In opposition to this, these parents point out that encouragement and support are sometimes not enough and that even coercion does not lead to the desired results. The category
respect for linguistic and cultural diversity is only weakly represented. Nevertheless, the authors highlight this category as extremely important for parents with no experience in multilingualism, for speakers of important languages, for speakers of languages with prestige and for those who live a quality and satisfying life with and in an single language (Krumm 2001).

The most important findings of the study are, however, not the rankings, nor the categories or the identified foci, but the content of the categories themselves.

**Parental guidance for parents**

Textual analysis of parts of the statements shows that the informative function prevails (*the child was shy and did not speak for a long time* (parental statement)); occasionally, they also include a wider appeal to parents (*Multilingualism is the right thing for parents, to encourage the multilingualism of their children* (parental statement)). Table 4 below lists some illustrative statements by parents who explicitly addressed other parents and appealed to certain behavioural or educational measures. For the purpose of the analysis, the parents’ statements were determined by a common denominator, i.e., in categories, owing to the low number of cases, the authors did not define terms and ranks.

<table>
<thead>
<tr>
<th>Sample statements:</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is necessary to begin early and read a lot of fairy tales, later they have to read them by themselves, listen to CDs, watch TV and have a lot of contact with people who speak a specific language.</td>
<td>media</td>
</tr>
<tr>
<td>You have to read a lot to the children, talk to them to learn Slovakian well.</td>
<td></td>
</tr>
<tr>
<td>Do not correct mistakes – just answer correctly.</td>
<td></td>
</tr>
<tr>
<td>Visiting families speaking the same language combination gave us courage, and it was always a great pleasure.</td>
<td>Communication in the target language</td>
</tr>
<tr>
<td>I have always worked hard and tried to find something interesting and funny for the children in Russian. We often went to Russia; I also sent them to camps so that they could hang out with Russian children.</td>
<td>Staying in an authentic environment</td>
</tr>
<tr>
<td>It turned out that a stay (even a short one) in a country where they speak a particular language works well.</td>
<td></td>
</tr>
</tbody>
</table>

Table 4 reveals that parents emphasise the importance of early learning/acquisition of the home language, mostly in extracurricular frameworks through media. According to parents and experts, media, including books, are the key to
the development of multilingualism. Parents emphasise the greater importance of intensive linguistic input, presumably intuitively, but in accordance with the theory of first language acquisition (Krumm 2001, Tracy 2007) over the linguistic output. Interestingly, some parents pointed out that parents should not correct mistakes in language learning. Accordingly, contemporary didactic concepts have also become relevant with the appearance of the CEFR (Council of Europe 2001) focusing on can-do-statements, and not on what we do not know. In contemporary concepts of learning, errors are treated as an indispensable, constructive part of learning (Apeltauer 1997, Demme 2007). The next important aspect noted by parents is the possibility of living in an authentic environment, that is, in an environment where the language, which students have learned in more or less isolation, is spoken and flourishes. Such incentives for linguistic development are often associated with the parents’ financial contributions and other circumstances and are therefore not necessarily viable for all children. For all three categories (media, communication in the target language and staying in authentic environments), special engagement by the parents is needed.

**Conclusion**

In the theoretical part, the authors emphasised the language heterogeneity of students that has become an indispensable part of pedagogical and educational discourse. While it is a major challenge for researchers and a new research field, for teachers who need to meet set goals and standards with all students, it is often a problem. There are no ultimate solutions to these problems for teachers, parents or other participants directly or indirectly involved in the process of language learning or multilingual upbringing. There are, however, some theoretical starting points in intercultural pedagogy, migration pedagogy, transcultural theory and migration didactics, providing a much needed basis for the realisation of various heterogeneous language concepts within and outside school.

Research emphasises that in multilingual education, it is important to simultaneously develop an individual's language skills in different languages, thus in the language of the environment and in the language spoken by the child at home (García 2014, Stratilaki-Klein 2016). Practice shows, however, that because of life circumstances, multilingual education focuses primarily on the language of the environment. The development of skills in languages that children speak at home stagnates or even stops. In order to allow the development of language skills among children who do not study their home language at school, the project team
prepared the Kuarki app, with a number of interesting texts and accompanying exercises. In this way, children can develop reading competence in their home language, as well as in foreign languages such as German or English. The app is a tool for learning the languages of the project partners (Slovenian etc.). The texts, types of tasks and attractive illustrations are universal and are not restricted to any of the target languages.

This article focuses on the role and opinions of parents in the process of multilingual education. Parents are only indirectly involved in the education process, but this does not diminish their key role. They are often ignored in theoretical discussions, so this study is devoted to their views and experiences. Parental statements showed that they did not explicitly report growing up with multilingualism or about their own experience, but focused instead on their experience of multilingualism as parents. The authors also wondered whether and to what extent the parents’ experience coincided with the theoretical starting points of multilingualism. The qualitative analysis has shown that in their statements most parents confirm the theoretical starting points (one person – one language, the later beginning of speech in multilingual children, and the importance of and the need to promote multilingualism (media, communication and staying in authentic environments)). Certain parents also reported other, more radical processes of multilingual education. In their opinion, stimulation is not always enough; children must also be forced into multilingualism. It could not be deduced from the records of the parents whether it was a personal experience, a life need or something else, or whether the goal really justified the means. Since there are no theoretical starting points concerning these issues, all interpretations can only be justified speculations.

Despite considerable research in the field of multilingualism and the practical processes of multilingual education that take place inside and outside school, the authors believe that globalisation and migration processes have overtaken theory and are absorbing more and more new and unexplored pathways. Teachers, parents and all involved in multilingual education need high quality tools. The Kuarki app and the parents’ statements, together with their analysis and interpretation, constitute important contributions to this set. Within theory, the authors once again emphasise migration pedagogy, which offers alternative paths, relativises existing paradigms of thinking and shifts the traditional pedagogical discourse. In this context, Mecheril argues that migration and the related heterogeneity in classrooms are neither a problem nor a challenge, but an opportunity to modernise the education system (Mecheril 2010: 19).
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General Didactics
The Educational Value of Control and Evaluation Activities

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Abstract

Education is a metaprocess focused on causing changes in individual and social resources of experience, knowledge, skills, attitudes, beliefs and aspirations, as well as in the state of health and physical fitness. This system of processes consists of many diverse interrelated interactions, actions, acts, deeds and activities, with many related elements and components, and among them control and evaluation activities. The purpose of the article is to present the results of analyzes and thoughts related to the determination of the role of these activities among other educational acts, related in particular to cooperation and mutual interaction. It goes well beyond the commonly accepted so-called school and colloquial understanding of these terms. They are treated primarily as cognitive and research activities, as well as valuing activities, as subject-making, person-forming and sociogenic tools. The basis of the research was a diachronic-synchronous model of the full, broadly understood act of educational activity. The resulting conclusions indicate their fundamental role in education.

Keywords: education, value, structure of activity, subject of activity, control, evaluation, comparative analysis, praxis pedagogy

Introduction

The concepts of control and evaluation are usually treated as the final stages of an action or activity. They are associated with institutions in which behavior is shaped and regulated by means of punishment and rewards. Such institutions
include the school in which the basic tool of regulation and course of work is the system of classification and evaluation of a student and teacher’s work achievements. For this reason, they are the subject of numerous research and studies, including in education sciences. Most often, however, they concern teachers’ control and evaluation activities, and to a lesser extent students’. They also primarily concern the control and assessment of achieved teaching and learning outcomes, and not the educational process of their creation and course. Failures related to the functioning of the grading and performance evaluation system are not expressed and are not limited only to low grades. Very often, they cause serious consequences in the area of physical and mental health, in a low level of trust, an excess of consumer attitudes and a shortage of creative attitudes (Sztompka, 2003). The source of failures emerges from the nineteenth-century work pattern of a teacher and a student, is still persisting in completely changed social and cultural communication systems and civilizational consequences that have been resulting from them. The educational system derived from research, including experimental work on education, requires a radical change on the optimal use of the creative potential of participants in education processes, especially teacher and student.

The main purpose of the study is to define the role of control-evaluation activities in: (1) creating systems of unitary and social education, (2) noticing and shaping full, conscious acts of education (educational acts) and (3) determining knowledge-creative, self-creative and sociogenic functions (4) generating educational: opportunities and threats, successes and failures.

The direction and the way of constructing answers to questions resulting from the above-mentioned goals are determined by the assumption that every human being – in its essence – is a biologically, socially and culturally defined system of educational communication. The system defined by (1) the processes of producing and sending verbal and non-verbal messages, (2) the processes of receiving (understanding) and creating a feedback message – the response and its transmission. The processes of creating, transmitting and receiving messages are associated with emotional and volitional processes. The basic role in such perceived education is fulfilled by the general cognitive-praxis structures produced in it, general knowledge of the reality and the values that give them sense.

Control and evaluation activities, which essentially are researchable and valuative ones, are the necessary components of every form of conscious and subconscious human activity. It means that any complex system: a person, social group or institution, through integrated and operationalized control and evaluation processes, educationally regulate and shape their own behavior in communication activities. This applies both to the internal environment of a particular system and
to the external social environment with which the system remains in causal relationships. In this situation, school systems are a particular case of such perceived universal education.

School systems, with some changes made, can contribute to thoughtful shaping of the ability to select and integrate strong information interactions generated by various external environment systems. These abilities are closely related to the inherent properties of control and evaluation activities – co-creation with subjects of activities not only of knowledge and skills but also of operational, general meta-knowledge systems and cognitive and valuing meta-skills.

From the above-mentioned structure of the main action, i.e. the act, the main thesis of the study arises – the basic unit of educational activity is the educational whole, which creates optimal conditions for shaping the full system of educational values, including universal values. Educational values are the both listed component activities and their individual elements as well as the causal relationships that connect them. Their lack may create highly adverse educational situations. However, it can create desirable problem situations, which, introduced intentionally, should trigger an educational process of creative effort allowing the person to familiarize themselves with the problem, its understanding and transformation into a form that internally integrates participants in this process.

**Methodological and theoretical aspects of the study**

The discussed control and evaluation activities contribute to the so-called main activities (acts and complex forms of activity), as well as their constituent activities: preparatory, implementation, application, control-evaluation and correction activities. The component activities determine the diachronic nature of the main activity – ordering in time and co-occurrence. The preparatory activities precede implementation activities, and these ones – application activities. Each of these activities is closely related to the other three – control, evaluation and corrective. The synchronous aspect refers to the co-occurrence in each conscious action of the following elements: the subject, purpose, object of change, means, methods and conditions as well as partial and final effects. They determine the transformation and production of the content of activities, and are visible – among others in every dialogue – a complex communication activity.

The issues presented above clearly indicate that when they are developed and theoretical and methodological foundations are presented, the need to reach to the theory of praxeological sciences, showing a comprehensive and general approach to
the features of all forms of conscious human activity arises. Praxeology is a general theory, and at the same time a methodology of cognitive and research activities, it is a methodological and axiological chance of education for each conscious and creatively acting person and group. It does not only mean a “purely” theoretical aspect, but also experiencing the process of creating and developing his/her own, and yet constantly tested theories of actions. In the past, this way was pointed out by Tadeusz Kotarbiński (1965) – the creator of praxeology – who stated that the principles of efficient action appear as a result of sometimes arduous observations and experiences, as well as recognition of the knowledge-making role of successful and unsuccessful ventures. Kotarbiński also identified the needs and directions for further development of praxeology. W. Gasparski (1983) included these directions in his works, building a theory of preparatory actions important for pedagogy and education. It should also be noted here that J. Gnitecki (1996) created in this respect the methodology of pedagogical praxeology.

An important role in this article is played by the works of D. Benner (1973, 1990, 1986, 1987), who in the context of analysis of German (cf. Derbolav 1975, 1976) and Finnish literature (Uljens 1994, 2010; Hintikka 1982) presented his own praxeological concept of general pedagogy. He pointed to its Greek roots (practical philosophy) and its revival in the age of enlightenment, among others, in the works of J.J. Rousseau, I. Kant, A. Humboldt, F. Schleiermacher and J. Herbart. The idea they expressed concerned a non-hierarchical and non-teleological attitude to pedagogical practice, which is associated with the emergence of modern pedagogy. Hence, we are talking about global praxeology (theory of human action) and universals of the problem of action.

The analysis and interpretation, as well as the methods of reaching significant statements, are embedded in a diachronic-synchronous, descriptive model of the full structure and function of conscious action (conscious act). Such a model, pointing to the necessary elements and relations between elements of action (action), may constitute an eligible tool for studying structural and functional components of educational reality and adjudicating on the consequences of the equilibrium states or deficiency states and excesses occurring in them.

An important methodological attention referring to the above issues concerns the basic cognitive (mental) operations, which determine the values used in research of methods, including observations and generalizations and the theories created: descriptions, explanations, projects, diagnoses, forecasts, and also comparative analyses of their basics. Comparative activities should be considered fundamental cognitive-research processes, which are present and available to everyone “waiting for their creative application”. In control and evaluation activities, they are
a necessity, because they co-create and define their cognitive-research, axiological and utilitarian value.

**Diachronic and synchronic analysis of educational and control-evaluation activities**

Basing on the analysis of literature that treats the structures and functions of activities, activities, deeds, the elements repeated in them and the phases repeated in their course (periods, links) were distinguished. Such behavior takes into account the diachronic and synchronic nature of the discussed forms of activity, which enables the construction of a deed model as a structural whole - an important tool in research on human functioning and development.

The synchronic approach to educational activities is formed by: (1) the subject of activity (action), meta-informational, mind structure which manages it; (2) the goal of an activity; (3) an intellectual and/or material object; (4) means of action; (5) methods of activity as an organization of means, enabling the transformation of an object and the realization of a goal; (6) conditions of an activity; (7) results of activity; (8) the environmental context of action (act). The adopted, simple way of understanding named elements is as follows: operation on the meta-informational structure of the mind that manages the action. The purpose of the action is an image of the desired, future state of its mental or/and material resources arising from the needs of the individual. The subject of the activity is mental or/and material resources changed in the course of achieving the goal; action measures on intellectual resources or support materials by which the subject of the action is to be changed. Operating conditions are the space-time and biopsychic factors determining the application and use of means and methods. The results of the action are anticipated and unforeseen, positive and negative, partial and final effects. In addition, the effects are the effects of carrying out partial tasks in the course of an action and taking application measures based on the final results. The environmental context of the action are social, natural, economic and cultural factors affecting the course of the act (see below Parallel 1).

The diachronic dimension of the problem under consideration is determined by successively occurring and co-existing, interdependent activities: (1) preparatory (application); (2) implementation; (3) application; (4) control; (5) evaluation; (6) corrective. Such activities may consist of specific actions assigned to them and create networks of activities. Learned, studied and experienced activities along with the above-mentioned elements, lead to the formation of subjective and inter-
subjective theories of actions, and after meeting the appropriate methodological rigori, to shaping scientific theories of actions, deeds. The discussed problems of diachrony and synchrony are the problems of organization and management of individual and group activities, including educational activities; they are the problems of organization and management of knowledge and skills (see below Parallel 2).

Taking into account the above-distinguished elements, co-creating every conscious action (subject, goal, etc.) and the constituent actions of the main action, by appropriate signment, we can relate each element to each constituent action and thus receive 48 different knowledge content and functions and include them in the parallel also taking into account the content of the main activity (see Table 1).

**Table 1.** A network of activities consisting of a main activity and component activities enabling the analysis of 48 differing content and functions of knowledge units

<table>
<thead>
<tr>
<th>Network of activities</th>
<th>main activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>subject</td>
</tr>
<tr>
<td>preparatory activities</td>
<td>preparatory</td>
</tr>
<tr>
<td>implementation</td>
<td>implementation</td>
</tr>
<tr>
<td>application</td>
<td>application</td>
</tr>
<tr>
<td>control</td>
<td>control</td>
</tr>
<tr>
<td>evaluative</td>
<td>evaluative</td>
</tr>
<tr>
<td>corrective</td>
<td>corrective</td>
</tr>
</tbody>
</table>

Source: Own study

**Parallel 1 – content of main activity elements and content of constituent activities:**
1) the subject of the main activity and six subjects of the component activities: preparatory, implementation, application, control, evaluation and corrective;
2) needs, objectives and tasks of the main action and six groups of purposes and tasks of the constituent activities (listed above);
3) the subject of the main activity and six subjects of the component activities (listed above);
4) main action and constituent action means (listed above);
5) main activity methods and six groups of constituent activity methods (listed above);
6) conditions for achieving the objectives of the main activity and conditions for achieving the objectives of the constituent activities (listed above);
7) results of the main activities and the results of the six component activities (listed above);
8) environmental contexts of the main activity and six constituent activities (listed above).

In the above way, we obtain material for analyzing the function of the main activity and the role of elements in creating knowledge about particular component activities as a whole arising from the diversified content of their elements. We also receive material indicating the possibilities of creating: monographic knowledge about individual elements of activities, obtained through the use of comparative analysis, and also knowledge about subjects, goals, objects, means, methods, conditions, results and their environmental determinants. It is important to note that material presented in this way includes the analysis of elements of control and evaluation activities and the possibility of determining their specific nature. When asked about the nature and specific features of knowledge about the component activities undertaken in the context of the main activity, the answer will be the parallel of component activities with elements forming individual activities.

**Parallel 2 – the main action and their elements:**
1) Knowledge about preparatory activities: possessed mental and material resources; subjects of activities, their needs, and goals, objects of educational change; means and methods of transforming the object of change; the conditions of preparatory activities; the results of preparatory actions; about environmental contexts of preparatory activities;
2) Knowledge about implementation activities: characteristics of their subjects and possessed mental and material resources; goals and tasks; objects of change; means and methods; conditions of achieving goals; partial and final results; environmental conditions of implementation activities;
3) Knowledge about application activities; applications of partial results which were researched during the operation and application of the final results obtained; features of their subjects; needs and goals; application of the results obtained; about the object of changes caused by the application action; means and methods of causing changes in the object of application activities; about the conditions of applying the application activity; about the results of applying the application activity; environmental contexts of applying the application activity;
4) Knowledge of control and evaluation activities: characteristics of their entities and possessed mental and material resources; the needs, goals and tasks of taking them up; research and evaluation items for control and evaluation activities; of means, methods and conditions for achieving their goals and tasks; of the results of research, control and evaluation activities; of the environmental contexts of their taking up and running;

5) Knowledge of corrective actions applies to all component activities of the main activity related to unforeseen defects, mistakes made as a part of the accomplishment of objectives and component activities: of entities of actions and possessed mental and intellectual resources; assumptions, goals and tasks of corrective actions; of the objects of these activities; means, methods, and conditions for their implementation; effects of corrective actions; of environmental conditions.

Knowledge of particular elements of activities, acquired taking into account their place and close relationships with each component action, creates specific and basic knowledge of education and the theory of education, its value, and importance in its entirety, which is a full act of educational activity. Similarly, we can talk about creating the knowledge of individual component activities, their specificity and values, and the necessary relationships. Together with the knowledge of their elements and equally necessary connections, we get an outline of knowledge of the structures and functions of the synchronic-diachronic, dynamic education model.

The analysis of diachronic features of the main activity and component activities shows that control and evaluation activities relate to all these activities and changes that occur in them, including the elements forming them. Thus, it can be said that they co-create and co-decide on the quality of preparatory, implementation and application activities of the main activity, as well as on the scope and quality of their own activities and meta-activities and – also accompanying all activities, that are important because of learning from errors – corrective actions.

In the description of educational activities, it is important to note the participation of consciousness, subconsciousness and unconsciousness in these activities. It is important here not only to master specific knowledge and skills, attitudes and competences, but also to shape subconscious, dominant structures that determine rapid decisions. Therefore, what conditions should meet the process of education, especially control and evaluation processes, so that the deep layers of the subconscious are possible of high quality resources of the mind and human life. This question is to be left unanswered, as it demonstrates the educational problem of functioning control and evaluation systems in complex structures of highly developed societies.
The Educational Value of Control and Evaluation Activities

Discussion

The special role of control and evaluation activities in the full act of educational act about the functioning of man in the world, that is, about the “gateway” to reality and the “gateway” to subjects of life

The use of categories of control and assessment requires the use of such general knowledge that would embrace and control the content of events that are the subject of control and evaluation. To take into account the importance of such requirements, the category of activity should be used. This means that when using the concepts of control and evaluation, we take into account the general diachronic and synchronic nature of their structures. We note that it is the subject of the activity that should have such features that allow it to manage the activity, including the course of testing and evaluation of the subject of control and evaluation. The synchronous aspects of such activities are presented as the first summary presents. It indicates the components, guided by the objectives of these activities. When we pose a question about their functions, in response we get the statement that each element and all together serve the subject in monitoring the control and assessment of the entirety of activities and their individual parts. They form a network of relationships along with information and metainformation structures, and by supporting themselves they create and develop knowledge and meta-knowledge of control and evaluation.

Control and evaluation activities create cognitive-research and emotional values. They join values that are the basis for taking them up, and which guide the activity in relation to the objects of these activities. Comparative analyses are their basis, so the value of control and evaluation is co-determined by the value of the comparative analysis. When we simplify these activities, focusing and satisfying quickly obtained results, confident in our competence, convinced of the simplicity of the task undertaken, we can make mistakes that result in multiple consequences of a cognitive nature (e.g. untruth, false judgments, and anti-knowledge), ethical, health or economic. The control and evaluation activities become the tools of the subject for searching, discovering, releasing, experiencing, and shaping such values as the sense of freedom, dignity, trust, truth, solidarity, and wisdom.

The question that is learned, formulated and asked by someone and the answer learned ready for the question, generally remain a foreign element in the mental resources. The same question, acquired with the activities leading to its formulation, considered by us as important, leads to the personalization of this process.
and the emergence of a shared cognitive and social value. The same applies to the answer.

In the diachronic and synchronic analysis of the structures and functions of conscious actions, main activities and components, in determining the causal relations between them, the analysis of management actions, that is entities’ activities, is of crucial importance. The structures and functions of entities are being born in the processes of recognizing and assessing needs, and their generators are control and researching, and evaluating and researching activities. These activities are necessary for the formation and development of entities and the empowerment of action structures. As a consequence, it can be said that control-evaluation activities are the gates to the structures and functions of the subject and subjectivity.

Control and evaluation activities as research activities are addressed not only to the subject but also to the outside world. When we look at the component activities listed above and stop at the “control-evaluation activities” item, we notice that they refer to all component activities and their elements, and through them, to the reality they concern. They, therefore, can be called “gates to external reality.” This issue arises when the fundamental cognitive value of comparative activities is analyzed. The special value of a control and evaluation activity as a research and evaluating activity results from the fact that it refers to the whole processes of education and determines them, or, more broadly, life. It defines their parts and relationships between them; it is an activity that pervades other activities, enabling the perception of significant dependencies, and the creation of their theories and meta-theories, the creation of multi-level images of controlled and assessed reality. Control and evaluation activities, with their entities, also cover themselves in processes of diachronic and synchronic self-knowledge or internal control and evaluation in the case of an organization (institution).

In social communication, which was mentioned in the Introduction, and in the dialogue that is its manifestation, the intellectual resources possessed by the interlocutors that determine its value play an important role. They can be assigned to the functions such as activity management, mediation in action, participation in evaluation and interpretation. The categorizing of reality plays a fundamental role by means of cognitive categories, related to comparative, control and evaluation activities. We categorize all objects and events that we encounter in the surrounding environment, and this activity is necessary for action and indispensable for survival. The conceptual categories that we create are the basis of language and thinking. Our ability to construct meanings depends, largely, on the system of cognitive categories that we adopt and is one of the most important skills that enable us to survive (Kövecses 2011, pp. 37, 64).
Considering the above distinguished spatiotemporal aspects of conscious actions, in the course of their fulfillment not only objects of actions and the level of achieved results are subjects to change, but – taking into account the awareness aspect – all its elements. Paying attention mainly to the goals and pursuit of the effects of action is a great simplification and waste of educational potentials, contained in the full structures and functions of action. Thus, it seems that the presented model of a full act of educational activity can be considered a useful contribution to the ongoing discussion on education reform.

**Conclusion**

In relation to the objectives of the article outlined above, it will be justified to state that each conscious action is co-created by control and evaluation activities. As it was demonstrated in the article, these activities participate in the creation and functioning of individual and social education systems, in perceiving and shaping full, conscious education acts (educational acts), in determining knowledge-making, person-forming and sociogenic functions in the transformation of education systems, as well as in educational generating: opportunities, threats, successes and failures. The analysis of the conscious action model shows that control and evaluation activities are multifunctional generators of knowledge and skills, as well as the source and implementation of values.

**References**


Abstract
The contribution presents partial results of research aimed to find out students’ evaluation opinions of their own knowledge and experience for development of children’s language and literary literacy in kindergartens and children’s school clubs and to point out differences in self-evaluation, depending on the length and the form of the study. The research sample consisted of 98% of students of the full-time and part-time study programme of Pre-School and Elementary Pedagogy, 228 in total. An 11-item questionnaire of our own design was used in the research. In the items P5 - P11, students expressed their subjective evaluation opinion of their knowledge and experience on a five-point scale. Research results showed that students’ self-evaluation of knowledge and experience in language and literary literacy depends on both the length and the form of their study.\footnote{The study is one of the outputs of the project KEGA No. 013UMB-4/2016 “Creating curriculum related to language and literary literacy in the new accredited Bachelor degree study”}

Key words: teachers, didactic competencies, language and literary literacy, kindergarten, children’s school club

Introduction – research background
One of the research objectives of the project KEGA No. 013UMB-4/2016 “Creating curriculum related to language and literary literacy in the new accredited Bachelor degree study”
Bachelor degree study” is to recognize and assess didactic competencies of students of pre-school and elementary pedagogy Bachelor degree study. Achievement of the project objective will add to knowledge about students’ process of learning didactic competencies to develop language and literary literacy in children in kindergartens and children’s school clubs.

Foreign research points to the importance of university students’ language education (Renuga, Kanchana, Mala, 2015). Language education of future teachers and educational child-care staff should include diagnostics and self-evaluation of competencies. Barr et al. (2000) identify with it. They state that pre-service preparation of teachers should include also self-assessment processes. Leader-Janssen and Rankin-Erickson's (2013) research shows a correlation between acquired knowledge related to teaching reading and self-evaluation in pre-service teachers. They found out that study of theoretical disciplines connected with attendance at lectures and seminars has an improving influence on students’ self-evaluation. Objectives of the project KEGA No. 013UMB-4/2016 pursue this purpose. In line with the reflective theoretical and practical model of teacher and educational child-care staff training (Rovňanová, Nemcová, 2017), project objectives focus also on students’ self-evaluation related to didactic competencies, which is also the subject hereof.

Didactic competencies are teachers’ cognitive, affective and motivational capacities to achieve successful results in children's learning. They allow teachers to carry out various teaching activities to fulfil educational objectives, thus implement generally recognized and innovative strategies, methods and forms of work in teaching (Petrovici, 2007).

In teacher preparation courses, students’ initial didactic “equipment” is knowledge, skills, experience, opinions and attitudes. The European Commission’s document Education and Training (2013) refers to teachers’ didactic knowledge as “knowledge of the discipline”. Students - future teachers learn scientific knowledge to modify contents of children's learning areas. They also acquire experience in teaching children both in simulated conditions of university classrooms and during teaching practice at schools. Cognitive processing of manifold knowledge and its evaluation allow students to reflect on instruction, their own competencies and relationships in the profession.

University instruction supports future teachers’ didactic thinking by reflection on the processes of education and self-reflection on their own educational activity. Teachers’ reflection on educational work includes self-evaluation.

Self-evaluation is one of the sources of students’ self-development in the teaching profession. Kosová (2000, p. 52) wrote about self-evaluation that “based on it,
an individual begins to lay down realistically achievable goals for oneself, makes effort to achieve them, is able to assess their achievement and lay down other ones.” The educational benefit of self-evaluation is the authenticity of teachers” and pupils’ assessment judgements of themselves. Future teachers’ self-evaluation may be evoked by an outer assessment, a course or a situation, a certain circumstance, as well as an intentionally administered self-evaluation tool. In the present research, students’ self-evaluation tool was a questionnaire.

In their self-evaluation, participants assess their knowledge also based on experience. According to Janík (2005), teachers’ knowledge and experience are correlated. Teachers acquire experience through episodes (episodic knowledge). If it has come right a number of times in various situations of the educational process, they generalize it (experiential knowledge).

The importance of experience in learning competencies related to language and literary literacy was also pointed out by Ravid and Tolchinsky (2002). They studied the process of children learning language and literature contents from various aspects, depending on socio-cultural requirements of a “literate” person, or a person’s literacy.

Literacy no longer means only the ability to read and write. It is a person’s competence, “equipment” with capacities to actively learn, create and communicate in the mother tongue (as well as in a foreign language) in various situations for various purposes. Both in education and in everyday life, people learn manifold language and literary competencies and teachers are a part of it. To teach these competencies, teachers get prepared in the course of study subjects.

**Study subjects of language and literary literacy in the programme Pre-school and Elementary Pedagogy (Bc.)**

The Bachelor degree study of Pre-school and Elementary Pedagogy prepares future teachers for development of children’s language and literary literacy. Students of the study programme ‘Pre-school and Elementary Pedagogy’ (Bc.) acquire didactic competencies to develop language and literary literacy in children in kindergartens and children’s school clubs in the study subjects indicated in Table 1, during three years.

The basis of the future teachers’ didactic competencies is acquisition of a number of competencies, the level of development of which is evaluated by the university teachers of the Matej Bel University Faculty of Education both during and at the end of instruction in individual terms. In connection with the objectives of the project
Table 1. Study subjects for language and literary literacy in the Bachelor degree study programme ‘Pre-school and Elementary Pedagogy’ at the Matej Bel University Faculty of Education

<table>
<thead>
<tr>
<th>1. 1-st year</th>
<th>2. 2-nd year</th>
<th>3. 3-rd year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basics of the Slovak language (WT – C)</td>
<td>Literature for children and media (WT – C)</td>
<td>Development of language competencies at elementary school (WT – CO)</td>
</tr>
<tr>
<td>Language and literary literacy in kindergarten and elementary school (ST – C)</td>
<td>Development of language competencies in kindergarten (WT – CO)</td>
<td>Creative dramatics in kindergarten and elementary school (ST - CO)</td>
</tr>
<tr>
<td>Assistant practice in the elementary school 1-st class (WT – C)</td>
<td>Theory and practice of pre-primary and primary education (WT – C)</td>
<td>Children’s school clubs and educational programmes in children’s school clubs with practice (WT – C)</td>
</tr>
</tbody>
</table>

Note: WT – winter term, ST – summer term, C – compulsory subject, CO – compulsory optional subject

KEGA No. 013UMB-4/2016 “Creating curriculum related to language and literary literacy in the new accredited Bachelor degree study”, we were interested whether there are differences in students’ evaluation opinions (in self-evaluation) depending on the study length and form. The research was initiated by the need of the project team to know answers to some research questions that tag on research objectives.

Methods of research

The goal of the research was to find out evaluation opinions (self-evaluation) of students of the study programme ‘Pre-school and Elementary Pedagogy’ (Bc.) of their own knowledge and experience concerning the development of children’s language and literary literacy in kindergartens and children’s school clubs. The objective was: to find out differences in students’ self-evaluations depending on the study length and form. The research problem was defined by means of the following questions:
QUESTION 1. Do full-time and part-time students of the 3rd year of Bachelor degree study evaluate their knowledge better than full-time and part-time students of the 1st year? (questionnaire items 5 to 9, finding out students’ evaluation opinions of their own knowledge);

QUESTION 2. Do full-time and part-time students of the 3rd year of Bachelor degree study evaluate their experience better than full-time and part-time students of the 1st year? (questionnaire items 10 to 11, finding out students’ evaluation opinions of their own experience);

QUESTION 3. Do part-time students of the 1st, 2nd and 3rd year of Bachelor degree study evaluate their knowledge better than full-time students of the 1st, 2nd and 3rd year of study? (questionnaire items 5 to 9, finding out students’ evaluation opinions of their own knowledge);

QUESTION 4. Do part-time students of the 1st, 2nd and 3rd year of study evaluate their experience better than full-time students of the 1st, 2nd and 3rd year of study? (questionnaire items 10 to 11, finding out students’ evaluation opinions on their own experience).

The research involved 228 students of the 1st, 2nd and 3rd year of full-time and part-time study in the Bachelor degree programme Pre-school and Elementary Pedagogy. It was a convenience sample of respondents. Hence, there are limited possibilities to generalize the research results. Since representation of men in all three years of study was less than 1.8%, this representation was not considered in the research. Detailed data on the research sample are presented in the table below.

**Table 2.** Research sample of Bachelor degree study students by years and forms of study

<table>
<thead>
<tr>
<th>Students</th>
<th>Full-time study</th>
<th>Part-time study</th>
<th>Total</th>
<th>1-st year</th>
<th>2-nd year</th>
<th>3-nd year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F-T</td>
<td>P-T</td>
<td>F-T</td>
<td>P-T</td>
<td>F-T</td>
<td>P-T</td>
<td>F-T</td>
</tr>
<tr>
<td>Number</td>
<td>165</td>
<td>63</td>
<td>228</td>
<td>69</td>
<td>83</td>
<td>76</td>
<td>228</td>
</tr>
</tbody>
</table>

Legend to Table 1: FT - students of the full-time form of study, PT - students of the part-time form of study

The method of research was a questionnaire in printed form. It contained 11 items. They were designed based on teaching objectives in the development of students’ didactic competencies in compulsory and compulsory optional subjects.
related to language and literary literacy (Tab. 1). The items 1 to 4 were of a demographic character. The items 5 to 11 focused on students’ self-evaluation of their own knowledge and experience in development of children’s language and literary literacy. The items used interval scales. Students evaluated their knowledge and experience by means of the interval scales as follows: 1 – excellent, 2 – very good, 3 – good, 4 – sufficient, 5 – insufficient. Items for evaluation of knowledge:

P5 – I evaluate my knowledge about theories of language development in children of pre-school age as (1 – 2 – 3 – 4 – 5);

P6 – I evaluate my knowledge about theories of language and literary literacy development in children of pre-school age as (1 – 2 – 3 – 4 – 5);

P7 – I evaluate my knowledge about reading and writing practice methods in primary education as (1 – 2 – 3 – 4 – 5);

P8 – I evaluate my knowledge about methods of language and literary literacy development in children’s school club as (1 – 2 – 3 – 4 – 5);

P9 – I evaluate my knowledge about methods of children’s language and literary literacy development in kindergarten as (1 – 2 – 3 – 4 – 5).

Items for evaluation of experience:

P10 – I evaluate my reading experience in literature for children of pre-school and younger school age as (1 – 2 – 3 – 4 – 5);

P11 – I evaluate my experience in educational activities and games developing children’s language and communication skills as (1 – 2 – 3 – 4 – 5).

The questionnaire was administered during university instruction in language and literary literacy related subjects. Respondents filled in the questionnaire in 2017, at the beginning of the winter term in the 38th to 40th week. Their evaluation opinions were processed and evaluated statistically.

Research results

Research data acquired by the questionnaire method were evaluated using descriptive and inductive statistics. The distribution of sample data values was normal, allowing use of parametric methods, namely the t-test. The measurement yielded the following interval data (Tab. 3).

<table>
<thead>
<tr>
<th>Questionnaire item</th>
<th>Arithmetic mean</th>
<th>Standard deviation</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>P5</td>
<td>3.26</td>
<td>0.84</td>
<td>3</td>
</tr>
<tr>
<td>P6</td>
<td>3.22</td>
<td>0.79</td>
<td>3</td>
</tr>
</tbody>
</table>
Knowledge and experience self-evaluation of students in the 1st and 3rd year of Bachelor degree study

We were interested whether students of the 3rd year of Bachelor degree study evaluated their knowledge better than students of the 1st year (Question 1). Statistical evaluation of results showed that students of the 3rd year evaluated their knowledge significantly better (significance at the level of $p \leq 0.01$) than students of the 1st year in the items P5, P6, P8, P9. Better evaluation of students in the 3rd year was not statistically significant in the item P7. The P7 statement regards knowledge about reading and writing practice methods in primary education, and it was inserted in the questionnaire as a check item, to find out respondents’ sincerity when filling in the questionnaire. Students are instructed on reading and writing practice methods in primary education only in the Master degree study programme.

Next, we investigated whether full-time and part-time students of the 3rd year of Bachelor degree study evaluated their experience better than students of the 1st year (Question 2). Statistical evaluation of results showed that students of the 3rd year evaluated their experience significantly better (significance at the level of $p \leq 0.01$) than students of the 1st year in both items P10 and P11. The comparison of knowledge and experience self-evaluation of students in the 1st and 3rd year is presented in Table 4 below.

Table 4. Statistical data on knowledge and experience self-evaluation of full-time students in the 1-st and 3-rd year

<table>
<thead>
<tr>
<th>Questionnaire items</th>
<th>Number of respondents</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Student’s t-test</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>P 5 I evaluate my knowledge about theories of language development in children of pre-school age as</td>
<td>76 69</td>
<td>2.9 3.4</td>
<td>0.75 0.93</td>
<td>-3.46</td>
<td>0.0007</td>
<td></td>
</tr>
<tr>
<td>Questionnaire items</td>
<td>Number of respondents</td>
<td>Mean</td>
<td>Standard deviation</td>
<td>Student's t-test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>-----------------------</td>
<td>--------</td>
<td>--------------------</td>
<td>------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3rd year</td>
<td>1st year</td>
<td>3rd year</td>
<td>1st year</td>
<td>3rd year</td>
<td>1st year</td>
</tr>
<tr>
<td>P 6 I evaluate my knowledge about theories of language and literary literacy development in children of pre-school age as</td>
<td>76</td>
<td>69</td>
<td>2.9</td>
<td>3.4</td>
<td>0.77</td>
<td>0.88</td>
</tr>
<tr>
<td>P 7 I evaluate my knowledge about reading and writing practice methods in primary education as</td>
<td>76</td>
<td>69</td>
<td>3.1</td>
<td>3.4</td>
<td>0.82</td>
<td>1.10</td>
</tr>
<tr>
<td>P 8 I evaluate my knowledge about methods of language and literary literacy development of children in children’s school club as</td>
<td>76</td>
<td>69</td>
<td>3.1</td>
<td>3.6</td>
<td>0.89</td>
<td>1.01</td>
</tr>
<tr>
<td>P 9 I evaluate my knowledge about methods of children's language and literary literacy development in kindergarten as</td>
<td>76</td>
<td>69</td>
<td>2.6</td>
<td>3.3</td>
<td>0.85</td>
<td>1.10</td>
</tr>
<tr>
<td>P 10 I evaluate my reading experience in literature for children of pre-school and younger school age as</td>
<td>76</td>
<td>69</td>
<td>2.5</td>
<td>3.0</td>
<td>0.81</td>
<td>0.96</td>
</tr>
<tr>
<td>P 11 I evaluate my experience in educational activities and games developing children's language and communication skills as</td>
<td>76</td>
<td>69</td>
<td>2.6</td>
<td>3.2</td>
<td>0.88</td>
<td>1.16</td>
</tr>
</tbody>
</table>

Legend to Tab. 4. Evaluation scale: 1 – excellent, 2 – very good, 3 – good, 4 – sufficient, 5 – insufficient.

Knowledge and experience self-evaluation of students in full-time and part-time Bachelor degree study

We were interested whether part-time students of the 1st, 2nd and 3rd year evaluated their knowledge better than full-time students of the 1st, 2nd and 3rd year of Bachelor degree study (Question 3). Both full-time and part-time students study by curriculum in the joint study programme. Full-time students have daily contact periods with their teachers during their university instruction. Part-time students in the Bachelor study programme study mostly while employed, in the form of Friday and block instruction. Nevertheless, students of three years of part-time study evaluated their own knowledge significantly better than students of three
years of full-time study (significance at the level of \( p \leq 0.01 \)). Again, the significant difference was not confirmed only in the item P7. We investigated whether part-time students of Bachelor degree study evaluated their own experience better than full-time students of Bachelor degree study (Question 4). Students of three years of the part-time study form also evaluated their own experience (items P10 and P11) significantly better than students of the full-time study form. The comparison of knowledge and experience self-evaluation of students in the 1\(^{st}\), 2\(^{nd}\) and 3\(^{rd}\) year of the full-time and part-time study forms is presented in Table 5 below.

**Table 5. Statistical data on knowledge and experience self-evaluation of full-time and part-time students**

<table>
<thead>
<tr>
<th>Number and wording of the questionnaire item</th>
<th>Number of Respondents</th>
<th>Mean</th>
<th>Student's t-test</th>
<th>Full-time</th>
<th>Part-time</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>P 5 I evaluate my knowledge about theories of language development in children of pre-school age as</td>
<td>228</td>
<td>3.4</td>
<td>3.0</td>
<td>3.04</td>
<td></td>
<td>0.0026</td>
<td></td>
</tr>
<tr>
<td>P 6 I evaluate my knowledge about theories of language and literary literacy development in children of pre-school age as</td>
<td>228</td>
<td>3.3</td>
<td>3.0</td>
<td>2.48</td>
<td></td>
<td>0.0138</td>
<td></td>
</tr>
<tr>
<td>P 7 I evaluate my knowledge about reading and writing practice methods in primary education as</td>
<td>228</td>
<td>3.3</td>
<td>3.1</td>
<td>1.64</td>
<td></td>
<td>0.1018</td>
<td></td>
</tr>
<tr>
<td>P 8 I evaluate my knowledge about methods of language and literary literacy development of children in children's school club as</td>
<td>228</td>
<td>3.6</td>
<td>3.0</td>
<td>4.57</td>
<td></td>
<td>0.0000</td>
<td></td>
</tr>
<tr>
<td>P 9 I evaluate my knowledge about methods of children's language and literary literacy development in kindergarten as</td>
<td>228</td>
<td>3.2</td>
<td>2.7</td>
<td>3.41</td>
<td></td>
<td>0.0008</td>
<td></td>
</tr>
<tr>
<td>P 10 I evaluate my reading experience in literature for children of pre-school and younger school age as</td>
<td>228</td>
<td>3.1</td>
<td>2.6</td>
<td>3.24</td>
<td></td>
<td>0.0012</td>
<td></td>
</tr>
<tr>
<td>P 11 I evaluate my experience in educational activities and games developing children's language and communication skills as</td>
<td>228</td>
<td>3.1</td>
<td>2.7</td>
<td>2.98</td>
<td></td>
<td>0.0032</td>
<td></td>
</tr>
</tbody>
</table>

Legend to Tab. 5: Evaluation scale 1 – excellent, 2 – very good, 3 - good, 4 - sufficient, 5 - insufficient.

Although the median is 3 in all self-evaluation items, there are statistically significant differences in self-evaluation between full-time students of the 1\(^{st}\) and the 3\(^{rd}\) year, and between full-time and part-time students of the 1\(^{st}\), 2\(^{nd}\) and 3\(^{rd}\) year of Bachelor study. It means that students not inclined to a median value ticked extreme values in their self-evaluation.


**Discussion**

Students in the 3rd year of Bachelor degree study evaluated their own didactic competencies better than students in the 1st year. The third-year students were more confident about their knowledge and experience. Better self-evaluation did not show as statistically significant in students of the 2nd year against students of the 1st year. After two years of Bachelor degree study, they were still not confident about their didactic competencies. Naturally, such results were expected, but not with absolute certainty. We were also concerned whether students of the 3rd year would really demonstrate in their answers a better evaluation of knowledge and experience which we consider as their personal profit from the study in the development of their own didactic competencies. This finding is deemed to be objective mainly because they passed subjects related to language and literary literacy in the Bachelor degree study. A possible reason for better self-evaluation of the third-year students was also them having passed teaching practice in the 1-st and 2nd year of study (Tab. 1; Line 5). The fact that students of the 3rd year in comparison with the students of the 1st year did not evaluate their knowledge and experience in methods of elementary reading and writing practice significantly better indicates the sincerity of answers in questionnaires. This issue is the subject of Master degree study in primary education. Thus, the check item had its meaning in the questionnaire.

*Based on the statistical findings, we can state that the didactic competencies of students of pre-school and elementary education, related to the development of children’s language and literary literacy, improve gradually. It means that it is a gradual process of becoming kindergarten teachers and educational child-care professionals for children’s school clubs.*

Students of the part-time study form evaluated their knowledge and experience related to language and literary literacy significantly better than students of the full-time study form. This did not hold only for knowledge of methods of reading and writing practice in primary education (Tab. 5; Line 4). Part-time students, in comparison with full-time students, had more opportunities to work with children in the field. A majority of them had educational experience of more years. Better self-evaluation of knowledge and experience in part-time students against full-time students indicates the importance of practical activities in the teaching profession. Some students of part-time Bachelor degree study were employed in the school system; some had their own children attending kindergartens or children's school clubs. That could also influence their self-evaluation. They could acquire knowledge and experience about children's language and literary literacy
in educational practice. In addition, part-time students, as well as full-time students, passed compulsory subjects connected with practice (Tab. 1; Line 5). Better self-evaluation of didactic competencies by part-time students could be caused also by other factors, for instance, insufficient feedback from university teachers due to a lower number of contact periods in instruction. Part-time students do not have so many consultations with teachers as full-time students; sometimes none. They do not have so many opportunities for discussions and a critical feedback in preparation and performance of educational activities for the development of children's language and literary literacy. This could also be the reason why part-time students were less critical of their own didactic competencies and evaluated their knowledge and experience better.

*When university teachers have a tool box of didactic tools, strategies and teaching techniques, they can have a tremendous impact on development of students' didactic competencies. Practical experience allows students to carry out and improve their educational skills (Berenato, 2017).*

**Conclusion**

We are aware of the fact that our research has both its benefits and limits. The major limit of the research was the method used. Students could not evaluate all their knowledge and experience. They had no possibility to describe and explain them in detail. Interviews with students would provide more precise information, although from a smaller number of students. There were only 11 items in the questionnaire, which reduced its reliability. The research was limited also by its size, sample availability and local character. Our research vision is to increase the sample by graduates active in practice. In line with the findings of Leader-Janssen and Rankin-Erickson (2013), our research results confirmed that development of future teachers and educational child-care staff is a gradual process. The length of study, thus passing the subjects taught improves self-evaluation of didactic competencies in students of the teaching profession. Another important issue is theoretical, didactic and methodological preparation aimed at the harmonious development of students' theoretical knowledge and practical experience spread in full-time study over three years. The above discussed findings of our research revealed possible shortcomings in the university teachers’ feedback given to part-time students on the development of their knowledge and experience. It should be improved by an extension of the part-time Bachelor study programme to four years and more contact periods and consultations, reflections with teachers of the
subjects. However, we consider the research results to be of benefit for the development of the curriculum related to language and literary literacy. The investigation is meaningful also for the follow-up research projects and for the improvement of the diagnostic process of students’ competencies in their own educational practice.

References:


Primary School Students’ Misconceptions about Physical Properties of Water

DOI: 10.15804/tner.2019.57.3.10

Abstract
Misconceptions are widely present among the students of all ages. The aim of this investigation was to determine the presence of misconceptions in understanding physical properties of water and to identify the most common ones. Quantitative analysis of data from the diagnostic conceptual test was performed on a sample of 243 first and third grade students from three elementary schools in Sombor, Serbia. It was shown that the impact of gender and school affiliation were not proven to be statistically significant factors in test achievements, while the children's age significantly affects test results, as expected. Synthetic and scientifically correct answers were more frequent among the third grade students, while spontaneous answers were more common among the first graders. Nevertheless, a significant proportion of spontaneous answers implies that misconceptions about physical properties of water are almost identical and deep-rooted among students of both ages. Identifying children's misconceptions provides a basis for development of accurate conceptual understanding.

Key words: primary teaching, science, misconceptions, physical properties of water

Introduction

The main goal of education is to enable children for further schooling, lifelong learning and better functioning in everyday life. In science education, students should be able to develop the skills, the will, the flexibility in thinking, key concepts
and understanding of how science ideas and knowledge are obtained (Harlen, 2013). In 2009 approximately 34% of students in Serbia failed to demonstrate a satisfactory level of scientific literacy in PISA tests, meaning that these students have insufficient scientific knowledge and that it can be applied to a limited number of typical situations (Pavlović-Babić & Baucal, 2010).

The term "misconception" refers to the situation in which the student’s idea or understanding of a phenomenon differs from the scientific concept. They can occur as children's incorrect, intuitive answers, but also, even after formal teaching, they still misunderstand a scientific concept and therefore explain it erroneously (Kubiatko & Prokop, 2009). Therefore teachers should understand both the students' conceptions and misconceptions, in order to correct, or initiate the process of conceptual change towards appropriate scientific concepts (Allen, 2010).

The reconstruction of the existing knowledge in teaching can be achieved by creating situations in which the student becomes unsatisfied with their own (spontaneous) notions. The new (scientific) concepts are understandable and credible, and the conceptual change is a gradual and evolutionary rather than sudden and revolutionary process (Taylor & Kowalski, 2004).

**Research Problem**

Formulation of scientific concepts in teaching must upgrade the ideas developed by a child through their personal experience. Traditional teaching is mainly oriented towards passive adoption and reproduction of the subject content, missing the confirmation of substantial understanding. Consequently, sporadic facts are often adopted, lacking a concept as a indispensable requirement to create functional knowledge. In the past two decades, research has been dedicated to the investigation of students' misconceptions, as well as to the study of the effects that teaching methods exert on scientific concept development by a conceptual change (Pine, Messer & St. John, 2001; Kikas, 2005; Yin, Tomita & Shavelson, 2008; Smolleck & Hershberger, 2011).

**Research Focus**

The aim of this research was to determine the presence and frequency of misconceptions in understanding physical properties of water, and to identify the most common misconceptions. The obtained information can be used to encourage elementary school teachers to continuously and consistently identify and correct children's misconceptions.

It was established that most children could successfully distinguish solid and liquid states, but not gas and liquid states (Smolleck and Hershberger, 2011). It
was found that children mix up steam, gas, mist and smoke, as well as melting, dissolving and disintegrating, and that the factors influencing these processes are unclear to them (Pine, Messer & St. John, 2001). Many primary students are not able to coherently adopt the concept of horizontality of the free liquid surface, having difficulty with conservation of the volume (Bošnjak Stepanović & Gorjanac Ranitović, 2016). The ability to understand the concept of water cycle in nature was investigated by Kikas (2005). A vast array of answers were obtained, from anthropocentric ones (because humans and plants need it), to synthetic answers with scientifically incomplete assertions about evaporation of water, forming clouds and precipitations. Yin, Tomita & Shavelson (2008) investigated misconceptions about the phenomenon of floating and sinking.

**Methodology of Research**

**General Background of Research**

This study investigated the children’s understanding and explanation of scientific facts covered by the subject contents about water. Topics about water are dominant in the first and third grade of primary school curricula, thereby the first and third-graders were elected as a sample group for this investigation.

**Sample of Research**

The sample was selected from a population of first-graders (six – seven years of age) and third-graders (eight – nine years of age). In total, 243 children (111 girls and 132 boys) from three elementary schools in Sombor, Serbia were included in the research conducted in spring 2016/17.

**Instrument and Procedures**

A diagnostic conceptual test was constructed based on the subject contents about water in the first and third grade of national curricula for the elementary school. The test covered contents about basic properties of water (shape, volume, free surface), states of water and the water cycle in nature, objects in water (floating and sinking) and solubility in water.

Metric characteristics of the test were verified in a pilot study involving 55 first- and third-graders from two elementary schools in Sombor. The test was created in concordance with the results of relevant studies concerning students’ misconceptions about physical properties of water (Pine, Messer & St. John, 2001; Kikas, 2005; Yin, Tomita & Shavelson, 2008; Smolleck & Hershberger, 2011). Every
correct answer was scored by one point. The open-ended questions in which the explanations of natural phenomena and processes were required were scored as follows: scientific explanations were assigned two points and synthetic answers were scored by one point. Naive (spontaneous) – incorrect explanations did not get any points, but they were classified according to their similarities, enabling the formation of the list of characteristic misconceptions for each specific physical property of water. The Cronbach Alpha value was used for estimation of the scale reliability, and it was 0.631 for our test, which is considered acceptable for knowledge tests in early school age (Pallant, 2010). Testing was conducted within one school class (45 minutes).

Data Analysis

Descriptive statistical measures (frequencies and percentages) were used for quantitative data analysis of the diagnostic test, in order to obtain the distribution of test results by score intervals in the entire sample and within subpopulations: gender, age and school. The Mann-Whitney test (for gender and age) and Kruskal-Wallis test (for school) were used to estimate the variations between subpopulations in test scores. The following qualitative criteria were used to classify answers into four groups (Petrović, 2006):

- **Spontaneous answers** are everyday answers, based on practical and sensory-perceptive experiences which are characterized by the absence of influence of teaching and scientific facts.
- **Synthetic answers** include certain features of both, spontaneous as well as scientific answers: they are based on experience with the existence of scientific thinking, but expressed in awkward linguistic constructions, answers learned by heart and associatively (often incorrectly) connected information.
- ’’I don’t know’’ answers are the ones where a student is not able to explain the notion, or is not familiar with particular facts and concepts.
- **Scientific answers** are considered to be the consequence of the concept adopted by the student. These answers represent the effect of teaching and the knowledge acquired at school.

Descriptive statistical measures (frequencies and percentages) were also used in qualitative analysis of children’s answers, and the results were grouped according to subject contents (questions) and groups of answers (spontaneous, synthetic, ’’I don’t know’’ and scientific) in each grade (first and third). Qualitative analysis included the analysis of some authentic examples of students’ answers.
Results of Research

Distribution of test results by score intervals in the entire sample and within subpopulations

The test achievements are presented as a scale which measures score intervals defined by the number of points and percentages.

Distribution of test achievements by score intervals in the entire sample and within subpopulations gender, age and school is shown in table 1, where \( f \) represents the number of students with a score in each interval, and \( p \) is the percentage of students relative to the total number of students or to the number of students within the subpopulation.

Table 1. Distribution of test achievements by score intervals in the entire sample and within subpopulations gender, age and school

<table>
<thead>
<tr>
<th>Sample</th>
<th>Subpopulation</th>
<th>I 0–8 points (0–20%)</th>
<th>II 9–17 points (21–42%)</th>
<th>III 18–26 points (43–63%)</th>
<th>IV 27–34 points (64–82%)</th>
<th>V 35–42 points (83–100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>N f p(%)</td>
<td>f p(%)</td>
<td>f p(%)</td>
<td>f p(%)</td>
<td>f p(%)</td>
<td>f p(%)</td>
</tr>
<tr>
<td>total</td>
<td>243 53 21.8 f</td>
<td>107 44 28.8 p</td>
<td>70 28.8 p</td>
<td>4 5.4 p</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>132 29 22 f</td>
<td>55 41.7 p</td>
<td>44 33.3 p</td>
<td>4 3 p</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>female</td>
<td>111 24 21.6 f</td>
<td>52 46.9 p</td>
<td>26 23.4 p</td>
<td>9 8.1 p</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I grade</td>
<td>121 45 37.2 f</td>
<td>60 49.6 p</td>
<td>16 13.2 p</td>
<td>0 0</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>III grade</td>
<td>122 8 6.6 f</td>
<td>47 38.5 p</td>
<td>54 44.3 p</td>
<td>13 10.6 p</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>school</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BJ*</td>
<td>66 13 19.7 f</td>
<td>34 51.5 p</td>
<td>15 22.7 p</td>
<td>4 6.1 p</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>NV*</td>
<td>93 25 26.9 f</td>
<td>41 44.1 p</td>
<td>25 26.9 p</td>
<td>2 2.1 p</td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>ILR*</td>
<td>84 15 17.9 f</td>
<td>32 38.1 p</td>
<td>30 35.7 p</td>
<td>7 8.3 p</td>
<td>0 0</td>
<td></td>
</tr>
</tbody>
</table>

*Designations of the elementary schools participating in research

The majority of the students’ scores belonged to the first three intervals, and the majority of students had scores within interval II. The proportion of students scoring 64% or more was minor.

Differences between subpopulations (in test scores)

Differences in the number of points scored according to gender were tested by the Mann-Whitney test. The obtained value \( U=7274.5 \) with \( p=0.0924829 \) was not statistically significant, indicating that there is no statistically significant difference among boys and girls in the test results.
Differences in the number of points scored according to age were also tested by Mann-Whitney test. The obtained value $U=2827.5$ with $p=0.000$ was statistically significant, indicating that there is statistically significant difference among the first and third graders in the test results.

Differences according to the school were tested by Kruskal-Wallis test and the obtained value $H=4.987346$, with $p=0.0826>0.05$ showed that no statistically significant difference in test scores among students from different schools could be observed.

**Analysis of the first- and third-graders’ answers**

The children’s answers were classified according to subject contents (questions) and types of answers (spontaneous, synthetic, “I don’t know” and scientific) by grades (first grade and third grade) (Figure 1 and 2).

Regarding the first question “What will happen with a glass full of water which has no cover if we leave it outdoors for a couple of days?”, scientific and spontaneous answers were dominant (Figure 1). These two types of answers were equally represented among first-graders (spontaneous – 42.99%, scientific 42.13%), while third-graders more frequently provided scientific answers (spontaneous – 25.64%, scientific 57.86%). The most frequent incorrect (spontaneous) answers were that water will: “spoil”, “warm up”, “remain the same”, “spill”, “be old”, “turn into liquid”, “get dirty”, “someone will drink it”, “dry out”, “disappear”.

It is interesting that the reverse situation – more scientific answers obtained from first-graders (58.86%) than from third-graders (40.49%) – was observed regarding the second question (Will water evaporate faster in a glass or in a plate?). It is evident that the concept of effect regarding the size of free surface to the rate of evaporation has not been adopted during preceding instruction, and that many of the third grade students were additionally confused. Incorrect answers that water will evaporate from glass faster were explained as follows: “the glass has larger free surface”, “the glass stands and water will not spill”, “because the glass is deeper”, “it is warmer in the glass”, “because it is narrower and wider”, “because it has bigger volume”, “because water cannot flow out from the glass”, “nothing can evaporate on a flat surface”.

What do people do to prevent roads and sidewalks become slippery in winter? was the third question, while in the fourth question the explanation was asked (“Why do people do that?”), aiming at adoption of the concept of (ice) melting phenomenon. It was noticeable that the majority of both groups knew that during winter sidewalks and roads are salted in order to melt the ice. However, none of the first-graders and only a few third-graders (7.43%) could provide a scientific
Primary School Students’ Misconceptions about Physical Properties of Water

explanation of that phenomenon. Synthetic answers (73.55% first-graders, and 72.73% third-graders) were predominant, suggesting that the ice melting concept was taught in class, but adequate and complete adoption of the scientific concept has not been established. Some of the wrong answers were: “they slide”, “they sled”, “they don’t move”, “they put on boots”, “they walk slowly”.

The fifth question was: “Why does it rain?” aiming at the adoption of concepts of evaporation and condensation (first grade) and water cycle in nature (third grade). Only a few first graders (8.24%) and 15.68% third-graders understand this concept, while the majority of them do not understand it at all. Some spontaneous answers to the question ‘why does it rain’ were as follows: “the clouds cover the sun”, “because it is a bad day”, “so that water gets in the soil”, “because it is cold”, “because the cloud cries”, “because God cries”, “if it doesn’t rain, everything would dry out” and “the rain falls so that we have more water”.

![Figure 1](image-url)

**Figure 1.** Results of analysis of students’ understanding water changes of state and water cycle (questions 1, 2, 3, 4, 5)

*Marking the water level when water is poured from the one container to another narrower container* was the assignment in the sixth task, intending to investigate the understanding of the concept of constant water volume and generally of conservation of measure. The ability to properly mark the water level in the
second container demonstrated only 21.49% of the first-graders and 42.15% of the third-graders. Taking into account that the ability of understanding a concept of conservation of measure such as quantity, mass, length, surface and volume develops between the age of seven and twelve, the poor achievements can be assigned to the developmental limitations of participants.

In the seventh task, the students were asked to color the free surface of water in bottles placed vertically, horizontally and at a tilted angle and to determine the bottles with the biggest and the smallest free surface. Only 5.79% of the first-graders and 26.45% of the third-graders correctly colored and compared the free surface sizes of water in the bottles. The large portion of synthetic answers (42.98% of first-graders and 72.72% of third-graders) is a consequence of the fact that the majority of the students failed to determine in which bottle is the smallest free surface of water, and in which is the biggest, although they colored them properly. It is evident that children of this age are still not fully capable of adopting the concept of horizontality of free surface of liquid.

The answers to the eighth question Will the object with a hole sink or float if the same object without the hole floated? showed that more than a half of partic-

![Figure 2. Results of the analysis of students' understanding basic properties of water (shape, volume, free surface), sinking and floating and solubility in water (questions 6, 7, 18, 19, 10)](image-url)
participants believed that the object with a hole would sink, while only 18.19% of the third-graders correctly concluded that it would float, because the objects were made of the same material, i.e. of the same density. The most common explanations to the incorrect claim that the object with a hole would sink were: “it sinks with a hole because it leaks”, “it sinks with a hole because it has not a flat surface”, “it is heavier with a hole and therefore it sinks”.

In the ninth task, the participants were asked to predict and explain whether the smaller ball would float or sink in water if the bigger ball made of the same material was floating. Only several first- and third-graders understood that the objects with the same densities (made of the same material), no matter the mass (size), will act in water in the same manner.

By means of the tenth question, the adoption of concept of solubility was examined. The children were asked to compare the solubility of sugar in warm and cold water. The majority of the students answered that sugar would dissolve in both glasses, but less students knew that the rate of dissolving increases with the increase of water temperature (70.25% first-graders and 52.89% third-graders), while a significant number of children mistakenly believes that it is vice versa (21.49% first-graders and 34.72% third-graders). It is interesting that older students showed worse results than younger ones, suggesting that adding other liquids in the third-grade curricula would compromise the already adopted concept of water as a solvent.

**Discussion**

The present investigation into the adoption of the concepts about the states of water and water cycle in nature reveals that almost half of the students are capable of recognizing the phenomena such as evaporation of water from an open glass, the dependency of the evaporation rate on the size of free surface, as well as melting ice in the presence of salt. However, only a minor number of children can explain processes such as the change of temperature melting point by adding salt or the mechanism of rain (Figure 1). The difference in the quality of adopted concepts between the first- and third-graders in favor of the older pupils is evident and expected, but it is worrying that even among them the percentage of adopted scientific concepts about the states of water and water cycle in nature does not go beyond 65%, and in certain cases it is below 10%.

The analysis of adoption of the second group of concepts (Figure 2), concerning the shape, volume and free surface of water, suggests that only about one fifth of
the first-graders and two fifths of the third-graders understand the concept of conservation of volume, and the number of students understanding a horizontal position of free surface of water is even smaller (under 10% of first-graders and about one quarter of third-graders). Over 80% of the pupils cannot scientifically explain the floating and sinking phenomenon. Finally, the concept of solubility of substances in water is comprehensible to the majority of students and, unexpectedly, more clear to the first-graders than to the third-grade primary students.

The diversity of children’s spontaneous and synthetic explanations of phenomena and processes, as well as their abundance, independent of the age, gender or school they attend, lead to the conclusion that teaching insufficiently contributes to the process of conceptual change from spontaneous to scientific concepts in learning about the properties of water.

Conclusions

The study confirmed the assumption that misconceptions about physical properties of water are widely present among elementary students and that teaching world around us and social and natural sciences did not sufficiently contribute to the development of scientific concepts about these phenomena. It has shown that children retain many naive ideas which should not be ignored, but rather used in the process of creating effective science teaching.

The misconceptions were more frequent among the first grade students as expected, but they were almost identical in terms of their nature (quality) in both subpopulations of participants and in concordance with similar studies by other authors (Kikas, 2005; Smolleck & Hershberger, 2011). The frequency of synthetic and scientific answers was higher among the third-graders than the first-graders. This result was expected, bearing in mind that older children have more “experience”, and they were also longer subjected to teaching.

It was confirmed that the test scores of the participants were not dependent on gender or school they attended, meaning that the results were equally poor. It can be attributed to the widespread teaching routine which develops only reproductive knowledge and does not contribute to the true understanding of scientific concepts.

The fact that many alternative (incorrect) concepts remained immune to the effects of the teaching process, implies the need for more frequent audit of students’ knowledge, using conceptual tests or interviews, as well as the introduction of active learning in primary teaching (Obadović, Rančić, Cvjetićanin & Segedinac,
2013; Jablonsky, 2009), which would lead to the development of scientific concepts through the process of conceptual change (Pine, Messer & John, 2001).

The established misconceptions in students’ knowledge should be used as a useful tool for further teaching, because they are in fact a foundation for building true concepts and scientific knowledge.

Acknowledgements
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References


A Study on Effective Educational Methods with the Change of Confucian Values in Korea

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Abstract
The purpose of this study was to explore the degree of Confucian awareness among Korean university students, and to develop more effective education measures. Before the experiment, Korean university students preferred a cramming teaching method (CTM) and an audiovisual teaching method (ATM). After observing four education methods such as the CTM, the discussion teaching method (DTM), the mixed teaching method of cramming and discussion (MTM), and the audiovisual teaching method (ATM) over two weeks, however, the study found that freshmen and sophomore students prefer the MTM, while junior and senior students prefer the DTM. This implies that the preferred teaching method for Korean university students is the CTM when the level of Confucian awareness is high, but as the level of awareness is reduced, the method progresses to DTM through MTM. In other words, it could be found that different methods of education need to be employed depending on the degree of identified Confucian-style values of students.

Key words: Confucian awareness, cramming teaching method, mixed teaching method, discussion teaching method, audiovisual teaching method

1 This work was supported by Hankuk University of Foreign Studies Research Fund of 2019.
Introduction

The enthusiasm for education in Korea is very high. The college entrance rate stands at 76.5%. Going to a good university is the primary goal of students, as it provides the best opportunity for success. Teenagers in Korea spend their school years competing fiercely to prepare for college entrance exams. After entering a good school, most students want to get a job in a well-regarded company. To this end, approximately 800,000 students take college entrance exams every year. Ninety percent of high school graduates take the tests. In Korea, going to college is considered crucial for success. Tests are conducted in middle and high schools during regular hours, and the class rank is given priority. The state provides compulsory education up to the secondary school. The school system is composed of six years in the primary school, three years in secondary school, three years in the high school, and four years in the college system. Parents sacrifice a great deal for their children's education, and make every effort to get them into a good university.

Why is Korea's education fever so high? The origin is very old and deep. Korea was originally an agricultural society in which people gathered and worked together. While living together, conflicts occurred, and a certain discipline was needed. A national system was also needed to protect property and to ensure safety. The development of bureaucracy and the systemization of the administrative system were inevitable. Competition was taken for granted when officials were selected through civil service examinations. Since the ninth year of King Gwangjong's reign (958) in the era for Korea dynasty (918~1392), Korean society has favored those with higher educational backgrounds (Encyclopedia of Korean Culture). The teachings of Confucius (551BCE-479BCE), who said, “I am also happy to be born and learned as a person” reminded Koreans of the need to learn. As a result, it became common to go to college in contemporary Korea. The society has a large number of M.A. and Ph.D. degree holders. Korean teenagers work very hard to be accepted into a good college. If they study well, teachers and peer groups will show them more attention. As the significance of the educational achievement is emphasized, private education after the school is taken for granted. It is common to attend private academic institutes until very late in the night during the week, and to attend classes at the institutes even during weekends. The primary goal of the students in Korea is to study better than their peers, and attend a better university. “Education,” “competition,” “success,” and “filial duty” are most valued by teenagers in the Korean society.

Confucian ideas had a great influence on the thinking and behavior patterns of individuals after being introduced to the Korean Peninsula (Nam, Kim, & Kim,
The prioritization of the family over the individual, and absolute obedience to the parental authority while living together, reflect these Confucian values. The ideological framework of “spreading love from me to my family, society and state, and respecting the grown-up and sacrificing my life for my country” (Mon, 2018) was formulated as a consequence.

Teenagers in Korea are taught the loyalty and filial piety of Confucianism during secondary and high school education (Lee, 2014). As a result, it is broadly accepted that the advancement of oneself is a way to prove filial duty to parents, and is an absolute duty for a child (Choi, 2014; 2018). Then, do the Confucian values strongly formed in Korean teenagers remain unchanged? This paper explores how the Confucian values of students attending universities change with each school year. Unlike secondary and high schools, where college entrance is the primary goal, there might be a change in Confucian values during the college life, where more independent decisions are valued.

This change could be a factor in designing more effective education methods, because learners’ changing perceptions are critical factors in increasing learning effectiveness. This research will suggest the most efficient methods of education while paying attention to the four key elements of Confucianism: familism, group consciousness, the sense of authority, and the communication method.

Research and Methodology

The survey was conducted on two occasions. First, the collection of questionnaires and qualitative surveys was conducted for one month, from April 20 to May 20, 2019. Next, we studied four education options over a two-week period. The survey was conducted on 120 students attending a university in Seoul. After dividing the first and fourth year students into two groups of 30 students each, the preferred method of education was investigated.

The total number of samples to be analyzed in this survey is 120. First, to examine the degree of Confucian consciousness among the students of the Korean university, a quantitative survey was conducted on four key values of Confucianism (familism, group consciousness, the sense of authority, and the communication method). A total of 16 questions were asked, divided among the first to fourth year students. In-depth qualitative surveys were conducted when a more detailed investigation was required. By examining the same question for each school year, we noted the degree to which Confucian consciousness changed each year.
In addition, two surveys were conducted on four different education methods, after dividing them by grade, in order to derive the most effective education measures. The most effective training method was investigated before the training was implemented (Mon, Nam, & Kim, 2014; 2017). After teaching familism, the group-first and the authority-oriented culture of Confucianism in traditional Korea, we investigated the most favored educational methods. As a result, meaningful results could be derived from the surveys obtained after the lectures were conducted.

The purpose of this survey was to find the degree of Confucian awareness among Korean university students, and to discover the most efficient teaching methods. After the survey, we could find out if Confucian consciousness, which was taught in the secondary and high schools, differed between grades in the college. After implementing four education methods, we also looked at the educational methods most preferred by the students. It is thought that this method of inquiry could derive its own meaning, noting that the learning effect is doubled when students are taught with the most preferred method of teaching (Mon, 2011; 2012; 2013).

Sample:
Confucian Awareness among the Korean University Students

In order to find the degree of perception of Confucian consciousness among the Korean university students, we noted familism, group consciousness, the sense of authority, and the communication methods, representing Confucian values. The South Koreans have lived for a long time with the minimum unit of life, being family-oriented, and the same family name and relatives forming a group. A type of authoritarian culture of respecting and obeying the elders is valued. The Confucian-style value system, which distinguishes between the old and the young, between highness and lowness, and between the top and the bottom, was also emphasized in terms of communication. So, how are the Confucian values identified among the Korean university students? The survey was conducted with a total of 16 questions, after dividing them from the first to the fourth year students.

Table 1 shows that lower grades (1–2) have a stronger sense of familism and group consciousness than higher grades (3–4). In the case of the first-year students in the lower grades, familism and group consciousness were found to be particularly strong, and as they moved up to the higher grades, consciousness
was found to be weaker. The phenomenon apparently stems from the Koreans’ perception of their families as the smallest unit of their lives. Koreans tend to value the family, and they value the family over self. Parents willingly make sacrifices for their children’s success, earning money to pay for college tuition. Additionally, children study hard to please their parents (47%). For the first-year students who went to the college under the care of their parents, the family is considered a victim (43%) for whom one is willing to sacrifice. As a result, it was found that the authority of the father should be recognized (35%) and that 42% were faithful to the Confucian-style values.

Meanwhile, group consciousness was also strong, as students grew up under the care of the community. It was found that 43% of the students felt comfortable with people, from the same hometown, and 41% of the students from homogeneity culture, respectively. The survey found that students felt an increased need for a “peer group” (41%), and that they felt more comfortable when they did something “together” (40%). While most of the survey items showed strong consciousness in the first grade, and weakened consciousness in the fourth grade, those who had special feelings for “the same school” and “the same hometown” were also high in the fourth grade. The trend appears to have stemmed from the recognition of the importance of “Donghak” (fellow students) (29%) and “Donghyang” (same hometown) (30%) for the purposes of their employment. In the end, the perception of the family-group by the Korean college students’ is an inherent consciousness that can be expressed as needed, showing strong signs in the lower grades, and fading from the higher grades.

Table 1. The Degree of Familism and Group Consciousness among Korean University Students (n=120)

<table>
<thead>
<tr>
<th>Category</th>
<th>1st year</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I study hard because my parents are happy.</td>
<td>47%</td>
<td>33%</td>
<td>12%</td>
<td>8%</td>
</tr>
<tr>
<td>2. Father’s authority should be recognized.</td>
<td>35%</td>
<td>29%</td>
<td>18%</td>
<td>18%</td>
</tr>
<tr>
<td>3. I can make sacrifices for my family.</td>
<td>43%</td>
<td>31%</td>
<td>16%</td>
<td>10%</td>
</tr>
<tr>
<td>4. I must obey the instructions of my superiors.</td>
<td>42%</td>
<td>33%</td>
<td>18%</td>
<td>7%</td>
</tr>
<tr>
<td>5. I have a strong affection for school.</td>
<td>46%</td>
<td>15%</td>
<td>10%</td>
<td>29%</td>
</tr>
<tr>
<td>6. I feel close to the people from the same hometown.</td>
<td>43%</td>
<td>13%</td>
<td>14%</td>
<td>30%</td>
</tr>
<tr>
<td>7. It is necessary to have a culture of affiliation.</td>
<td>41%</td>
<td>21%</td>
<td>13%</td>
<td>25%</td>
</tr>
<tr>
<td>8. I feel more comfortable when I’m together than alone.</td>
<td>40%</td>
<td>23%</td>
<td>14%</td>
<td>23%</td>
</tr>
</tbody>
</table>
Table 2. Perception of Authority and Communication among Korean University Students (n=120)

<table>
<thead>
<tr>
<th>Category</th>
<th>1st year</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Hierarchical order is needed between seniors and juniors.</td>
<td>14%</td>
<td>16%</td>
<td>35%</td>
<td>45%</td>
</tr>
<tr>
<td>10. Parental authority should be respected.</td>
<td>15%</td>
<td>16%</td>
<td>25%</td>
<td>44%</td>
</tr>
<tr>
<td>11. Have to follow elder brothers and sisters’ instructions.</td>
<td>18%</td>
<td>21%</td>
<td>29%</td>
<td>32%</td>
</tr>
<tr>
<td>12. Courtesy is important.</td>
<td>15%</td>
<td>18%</td>
<td>32%</td>
<td>35%</td>
</tr>
<tr>
<td>13. Ask those who you meet first, the time, their age/school entering year.</td>
<td>6%</td>
<td>13%</td>
<td>29%</td>
<td>52%</td>
</tr>
<tr>
<td>14. Consult a person on a difficult task.</td>
<td>12%</td>
<td>18%</td>
<td>27%</td>
<td>43%</td>
</tr>
<tr>
<td>15. It is convenient to communicate with foreigners.</td>
<td>10%</td>
<td>21%</td>
<td>29%</td>
<td>40%</td>
</tr>
<tr>
<td>16. Familiar with the culture of discussion.</td>
<td>14%</td>
<td>16%</td>
<td>32%</td>
<td>38%</td>
</tr>
</tbody>
</table>

Table 2 shows that in terms of a sense of authority and communication, students tend to have stricter manners in the senior year than they do in lower grades. When asked, “do you think courtesy is important?” the rate was low at 15% in first grade, but as the school years progressed, it grew from 18% through 32% to 35%. The reason for the emphasis on authority seems to be that senior men apply the culture of authority they acquired in the military to college life, and female students develop a sense of seniority as they become accustomed with the university culture. As a result, it was found that the hierarchical order was necessary (45%) and the authority of superiors should be respected (44%). This ritual began to be emphasized in the third grade, but by the fourth grade it was found to be very strongly recognized. Communication consciousness was also found to be difficult (10%) in the first grade, but as students progressed to the fourth grade, the debate was considered familiar (38%), as was communication with foreigners (40%). Recognizing that Koreans’ habit of asking first-timers about their class year or age is a way of communication that emphasizes hierarchy, it is considered natural that the highest percentage (52%) of students in the fourth grade become more socialized.

In conclusion, the sense of authority and communication among the Korean university students is gradually strengthening as their experience builds and as the academic years progress. This is because the Confucian-style values, which respect the experience and judgment of their superiors and the value of their authority, influence the formation of consciousness among the Korean university students.
According to Table 3, the Confucian values held by the Korean university students vary, depending on individual issues and the composition of each school year. In the case of familism, it is the strongest in the first year of the college, while under the care of parents, but as an effect of self-organization and independent living, gradually it is weakened (42% → 31% → 16% → 11%). In the case of the collective consciousness, students felt the need strongly in the lower grades, when they were not familiar with the college life (first grade-42%). By the fourth grade, when they needed help from their seniors, the trend became strong again (fourth grade-27%). On the other hand, the sense of authority was found to be strengthened as the older students adapted to school (14% → 17% → 30% → 39%) and became more comfortable in communication with their juniors.

We attempted to explore more effective education methods based on the degree of the Confucian awareness among the Korean university students through quantitative and qualitative research. Table 4 is a survey of education methods that have been the most effective in learning among the Korean university students.

Table 4. What is the most effective teaching method for you? (n=120)

<table>
<thead>
<tr>
<th>Category</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTM</td>
<td>34</td>
</tr>
<tr>
<td>DTM</td>
<td>14</td>
</tr>
<tr>
<td>MTM</td>
<td>22</td>
</tr>
<tr>
<td>ATM</td>
<td>30</td>
</tr>
</tbody>
</table>

The survey showed that the Korean university students prefer CTM (34%), a method of the Confucian-style education taught by the professors and accepted by the learners. In other words, rather than taking the initiative in learning or debating, the vertical learning method that has been continued in the secondary and high school is considered the most effective method of teaching. Table 5 shows the results of a survey of preferred teaching methods by each grade.
Table 5. What is the most preferred method of education for you? (n=120)

<table>
<thead>
<tr>
<th>Category</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; year</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; year</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt; year</th>
<th>4&lt;sup&gt;th&lt;/sup&gt; year</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTM</td>
<td>43%</td>
<td>13%</td>
<td>12%</td>
<td>7%</td>
</tr>
<tr>
<td>DTM</td>
<td>6%</td>
<td>20%</td>
<td>20%</td>
<td>30%</td>
</tr>
<tr>
<td>MTM</td>
<td>19%</td>
<td>28%</td>
<td>46%</td>
<td>43%</td>
</tr>
<tr>
<td>ATM</td>
<td>32%</td>
<td>39%</td>
<td>27%</td>
<td>20%</td>
</tr>
</tbody>
</table>

The new freshmen preferred CTM (43%), which was taught unilaterally by professors. On the other hand, in the second grade, they preferred the video-oriented education method, but moved away from the method of the Confucian-style teaching toward the stage where they preferred MTM. By the end of third or fourth grade, the preferred method of teaching changed to MTM, which combines both the cramming and debating education style.

The preferred method of teaching by the Korean university students is the Confucian-style method in the lower grades, but as they enter higher grades, the preference is extended to MTM, which includes the method of the Confucian-style discussion. This outcome is correlated with changes in the Confucian-style values.

Results: The Most Effective Training Method

To look at the most effective education method and the changing process of the most preferred education method, four education methods were implemented over a two-week period from June 3 to June 17, 2019. After dividing 40 students from the first to fourth grades into four classes, a two-hour lecture was conducted, using four different education methods for each class.

For CTM, lectures were given on “The process of the Korean family-oriented formation,” “The culture of Collective community-oriented type,” “Authoritarianism emphasizing hierarchy” (Kim, 2018; Kim, 2015; 2017), and “A communication style of top-down clothing” (Jung et al., 2014). DTM presented four issues: “Limitations of culture that emphasizes the family over an individual” (Ministry of Education and Human Resources Development, 2008a; 2008b), “The Relationship between the Farming Society and the Community Culture,” “Should I unconditionally follow the directions of the superiors,” and “Can I raise the issue of the instructions of the superiors?” MTM discussed the positive and negative aspects of Confucian culture (Ministry of Education and Human Resources Development, 2008c), the vertical structure of male-dominance, and the communication struc-
ture of directive and obedience (Cho et al., 2014), after describing Confucian ideas on filial piety and loyalty.

Finally, ATM was implemented to discuss the male-centered authoritarianism, parents’ unilateral directions contained in the family culture (Namkung et al., 2014; Byun et al., 2014), and the uniformity of communication, by showing a soap opera of a big family’s life. The researcher asked about the most effective education method, after teaching the Korean social culture based on Confucian ideas with four different educational methods, covering a total of 32 hours over the two-week period.

### Table 6. What is the most effective teaching method for you? (n=120)

<table>
<thead>
<tr>
<th>Category</th>
<th>B</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTM</td>
<td>34</td>
<td>15</td>
</tr>
<tr>
<td>DTM</td>
<td>14</td>
<td>37</td>
</tr>
<tr>
<td>MTM</td>
<td>22</td>
<td>30</td>
</tr>
<tr>
<td>ATM</td>
<td>30</td>
<td>18</td>
</tr>
</tbody>
</table>

Note: Before survey = B; After survey = A

A notable fact is that effective teaching methods have changed compared to those before the experiment. Before the test, Korean university students chose CTM as the most effective method of education (34%). However, after hearing four education methods over a two-week period, DTM (37%) was judged to be the most effective, followed by MTM (30%).

### Table 7. What is your preferred method of education? (n=120)

<table>
<thead>
<tr>
<th>Category</th>
<th>1st year</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>CTM</td>
<td>43%</td>
<td>17%</td>
<td>13%</td>
<td>10%</td>
</tr>
<tr>
<td>DTM</td>
<td>6%</td>
<td>13%</td>
<td>20%</td>
<td>22%</td>
</tr>
<tr>
<td>MTM</td>
<td>19%</td>
<td>50%</td>
<td>28%</td>
<td>48%</td>
</tr>
<tr>
<td>ATM</td>
<td>32%</td>
<td>20%</td>
<td>39%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Note: Before survey = B; After survey = A

These changes have also been seen in the preferred method of education for lower grades. For first the grader, the rate changed from CTM (43%) to MTM (50%). Prior to education, they preferred CTM to acquire knowledge unilaterally,
but developed into preferring MTM to express their opinions after the training. For the second graders, MTM was the most preferred (48%), just as for the first graders, but ATMs had been the most preferred before the test (39%), and thus the audiovisual effects of reporting and hearing were greatly felt.

The preferred education method for the first and second graders shifted from the passive education recipients to self-participating MTMs, yet it has to reach self-directed learning methods. On the other hand, the method of the Confucian-style education abated by the third or fourth grade, and shifted to self-directed education. This trend is partly due to increased presentation classes at the universities, but it seems to reflect greatly the result of an improved sense of self-participation in the objects of education.

According to Table 7, as the third and fourth years, Korean college students increasingly prefer self-directed education, breaking away from the method of the Confucian-style education. The results reflect the effect of being independent from the family, the expression of a sense of responsibility for social inclusion, and the willingness to pioneer one's own life.

**Conclusion**

The purpose of this research was to find the most effective teaching method after investigating the Confucian consciousness of Korean university students. In order to obtain it, we tried to look at how the concept and collectivity of the family changes after students' entering the college, and also we paid special attention to the change in the sense of authority and communication. Additionally, we delved into how these changes of consciousness correlate to learning. To that end, 120 students in the first through fourth grade were surveyed on a total of 16 questions on the degree of familism, group consciousness, the sense of authority, and the communication method.

Korean students go to college after cramming for secondary and high schools through a collective life. Therefore, the first-year students are highly dependent on their parents, and prefer protection within the boundaries of the department. On the other hand, they are not good at communication, and lack a sense of authority. In the case of male students, when they are discharged from military service, their self-consciousness lessens, and they want to escape from the protection of parents or the boundaries of departments, and express their authority as seniors, and their sense of hierarchy learned from the military. As a result, the sense of authority and
the communication consciousness are gradually expanded. Familism and group consciousness, on which they depended in the lower grades, are rather weakened. Then, what is the correlation between this change of consciousness and the preferred educational methods? To this end, four education methods based on Confucian values were implemented, and students were asked to choose one of them. The study found that in times of strong familism and group consciousness, students preferred ATM, which was represented as memorization-oriented education. When they came to higher grades, and opened their eyes to a sense of authority and communication, they preferred DTM and MTM, which are self-directed learning methods.

The study found that the preferred method of teaching for the Korean university students is to develop from ATM education, to DTM that expresses one's intention and freely exchanges opinions with others, through MTM that combines infusion and discussion.

References


Abstract
This study aims to explore the role of knowledge of content and students of a prospective mathematics teacher in designing learning that integrates mathematical literacy into mathematics teaching and learning. This research was a case study with a single-case design. A participant selected from 75 prospective mathematics teachers through purposive sampling techniques was assigned to compile two sets of learning tools to teach mathematical literacy through learning the concepts of relationships and functions. The data were collected through in-depth semi-structured interviews based on her experiences of designing the learning tools. Then, the data were analyzed to reveal the role of Knowledge of Content and Students (KCS) in designing the learning. The results of the analysis show that KCS has a considerable role in the prospective mathematics teacher in designing learning. The researcher found that knowledge of students' mastery of the prerequisite materials affected the depth of the material; knowledge about students' misconceptions, errors, or difficulties influence teaching strategy decision and organizing learning material, and knowledge of students' interests, motivation influences the selection of problem contexts and strategies to encourage students' active participation in the class.

Key words: knowledge of content and students, prospective mathematics teachers, mathematical literacy, secondary mathematics classrooms
Introduction

Mathematical literacy is an essential skill that every human needs to possess in order to cope with the challenges that the world poses. This is implied in its definition proposed by OECD (the Organisation for Economic Co-operation and Development), i.e. mathematical literacy is students’ capacity to formulate, employ and interpret mathematics in a variety of contexts which includes to reason mathematically and to use mathematical concepts, procedures, facts and tools to describe, explain and predict phenomena. It assists individuals to recognize the role that mathematics plays in the world and to make the well-founded judgments and decisions needed by constructive, engaged and reflective citizens (OECD, 2016). Unfortunately, the results of the PISA (Programme for International Student Assessment) test in the field of mathematical literacy for students aged 15–16 years from 72 countries showed that more than 50% of PISA participating countries had the unsatisfactory performance with an achievement score below the OECD score average of 493. Indonesia is one of them. Although in PISA 2015 the average score of mathematics literacy of Indonesian students increased by 11 points, Indonesian students’ achievements were still unsatisfactory and still ranked 63rd (OECD, 2016). If learners are to become problem solvers that use various tools to help them reason, model, and communicate, teachers need to implement such instructional techniques into their classrooms (Colwell & Enderson, 2016). Mathematics education has promoted standards with the same processes as mathematical literacy, i.e. problem-solving, communication, connections, reasoning and proof, and representations (NCTM, 2000). Therefore, the integration of mathematical literacy into mathematics teaching is deemed necessary.

Research Problem

Teachers have extensive responsibilities in teaching a subject that is difficult for students to understand (Şahin, Gökkurt, & Soylu, 2015). Teachers require knowledge that allows them to interpret students’ mathematical thinking by using their mathematical knowledge and organizing their teaching to help students to understand more easily. Shulman introduced this knowledge as Pedagogical Content Knowledge (PCK) that is a “special amalgam of content and pedagogy that is uniquely the province of teachers, their special form of professional understanding” (Shulman, 1987). Researchers in mathematics education also delineate PCK components which extend Shulman’s original conceptions. Hill, Balls, and Schilling characterize PCK into three components: knowledge of content and
students (KCS), knowledge of content and teaching (KCT), and knowledge of the curriculum. The part of PCK combining the knowledge of students and the knowledge of content is known as the Knowledge of Content and Students (KCS). KCS is knowledge of content related to the knowledge of how students think, know or learn about specific content (Hill, Ball, & Schilling, 2008).

Some recent studies argue that KCS is essential knowledge for the development of PCK (Lannin et al., 2013) to promote effective instruction and student learning (Hill & Chin, 2018). Such as by identifying and understanding students’ mathematical struggles in the classroom by examining the instructor’s efforts to listen to the students (Ball, Thames, & Phelps, 2008; Johnson & Larsen, 2012) and by designing tasks and questions to further student understanding (Ahn, Kulm, & Wu, 2004).

**Research Focus**

Based on the exploration of the studies above, it can be concluded that there has been no study exploring how teacher’s KCS influence teachers’ plans of teaching within the scope of mathematics. Therefore, this paper reports on the results of a case study concerning the role of knowledge of content and students in a prospective teacher of mathematics and their skills to design learning that integrates mathematical literacy into the classroom of the secondary mathematics course. The role of KCS described in this study is somewhat different from the previous studies because our study focused not only on teaching mathematics, but also on teaching mathematical literacy. We chose the prospective teachers of mathematics to become the participants in this study because they are the future mathematics teachers in our secondary schools.

**Methodology of Research**

This research was a case study with a single-case design. Seventy-five Indonesian prospective teachers of mathematics were involved as participant candidates. The selection of research participants was carried out with a purposive sampling technique: the participants should be communicative, with a high level of the three types of knowledge, i.e., mathematical literacy (based on mathematical literacy test), mathematics (based on the GPA of pure mathematics courses) and pedagogical knowledge (based on the GPA of educational courses). The selected participant was Miss Nana (name of the participant is anonymized to ensure confidentiality), a female prospective teacher of mathematics who resided during semester 7 in
a mathematics education department of a University on the east of Indonesia, and the most communicative candidate from five others that fulfill the categories. The participant candidates’ base knowledge was demonstrated in Table 1.

Table 1 The participant candidates’ base knowledge

<table>
<thead>
<tr>
<th>Categories</th>
<th>Mathematical Literacy</th>
<th>Pure Mathematics</th>
<th>Educational Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Score</td>
<td>Numbers</td>
<td>GPA</td>
</tr>
<tr>
<td>Low</td>
<td>0–19</td>
<td>13</td>
<td>Bellow 3.00</td>
</tr>
<tr>
<td>Medium</td>
<td>20–32</td>
<td>47</td>
<td>3.00–3.50</td>
</tr>
<tr>
<td>High</td>
<td>33–45</td>
<td>15</td>
<td>3.50–4.00</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
</tbody>
</table>

Through the initial interview, it was known that Miss Nana had no prior knowledge of mathematical literacy. Then, Miss Nana was given a month to study mathematical literacy from any sources, and one week to gather information about the background of students to be taught at the school. She chose to use learning observations in the class to be taught, interviews with mathematics teachers who used to teach in the class to gather any information about students. After gathering the information, she was assigned to design two sets of learning devices, each set consisting of a lesson plan, and the students’ worksheet. Learning devices must integrate mathematical literacy in the content of the concept of relations and presentation, and the concept of function and presentation within one week for each set. The next data were collected through a semi-structured in-depth interview. During the interview activities, Miss Nana was asked to recall the knowledge used to compile the learning devices. Interviews for each learning set were carried out at different times; the second interview was conducted three days after the first interview. The interview was audio-video-recorded, transcribed, coded and analyzed qualitatively to answer the research question.

Because this was part of a larger exploratory study, the findings are discussed in themes. These themes emerged as findings in uncovering KCS from participants. The aspects (see Table 2) extracted from the KCS were adapted from Hill, Ball & Schilling. In this study the content taught was the integration of content mathematics and mathematical literacy. In developing the themes, memoing and writing up the final findings were important exercises to make sense of the data (Hill et al., 2008). Writing is not merely the end product of the research process but a way to inquire into the process (Denzin & Lincoln, 2005).
Table 2. The Categories and Descriptors for Knowledge of Content and Students

<table>
<thead>
<tr>
<th>Categories</th>
<th>Descriptors</th>
</tr>
</thead>
</table>
| Knowledge of students’ mastery of the prerequisite materials and students’ initial mathematical literacy | 1. Choose how to dig up information and predict students’ initial ability to formulate situations mathematically and act on them in the learning plan.  
2. Choose how to dig up information and predict students’ initial ability to use facts, concepts, procedures, and mathematical reasoning and act on them in the learning plan.  
3. Choose how to dig up information and predict students’ initial ability to interpret, apply and evaluate mathematical results and act on them in the learning plan.  
4. Choose how to dig up information and predict mathematical prerequisites and mathematical literacy abilities and work on them in the learning plan. |
| Knowledge of the content that often appears to be easy or difficult for students to understand | 1. Choose the way to dig up and predict which mathematical contents that are easy or difficult for students to understand, then find the causes and the ways to overcome them on the learning plan.  
2. Choose the way to dig up and predict mathematical literacy contents that are easy or difficult for students to understand, then find the causes and the ways to overcome them on the learning plan. |
| Knowledge of students’ interest and motivation                              | 1. Choose how to identify students’ interests and motivations  
2. Predict which examples or assignments can attract or motivate students and then act on them in the learning plan. |

Results of Research

Knowledge of content and students in prospective mathematics teachers (and the lack of it) greatly influenced their decision on designing the plans of teaching. Since there are three categories of KCS, three major interwoven themes emerged through data analysis, regarding how this base of unique knowledge influenced mathematics and mathematical literacy design of learning.

Knowledge of students’ mastery of prerequisite materials affects the depth of the content

Predicting the mastery of prerequisite materials often becomes an initial thought for teachers in determining how deep and broad is the content to be taught. Predictions of Miss Nana about the knowledge prerequisites affect her decision regarding the depth of the material to be presented. In the lesson plan prepared, the prerequisite materials were written by her, but she planned to present
the materials only briefly, and immediately integrated them into the implementation of learning. Miss Nana predicted that generating student prerequisite knowledge was not difficult because students already mastered the prerequisite material. She would focus more on the process of constructing the concepts of relations and functions, their presentation and the integration of mathematical literacy. She would also adapt the learning material of relation and functions to learn mathematical literacy by using problems on mathematical literacy that use reasoning abilities as the main abilities needed to fit the character of students.

This result implies that the prospective mathematics teacher realizes the importance of mastering prerequisite knowledge and initial abilities of mathematical literacy in students. It is consistent that students enter learning environments with preconceptions about the content that influences how they grasp future material, and of this can have an impact on instructional practice (Bransford, Brown, & Cocking, 2000). The prospective mathematics teacher identifies two conditions that caused difficulties i.e. the lack of mathematical knowledge and the lack of reasoning abilities. This assumption is in line with the causes of student difficulties and the lack of mathematical knowledge (Isiksal & Cakiroglu, 2010).

**Knowledge of students’ misconceptions, errors, or difficulties affect a decision on teaching strategy and the organization of learning material**

Teachers are always concerned with students’ difficulties, misconceptions or mistakes and consider them problems to address or minimize. As a prospective mathematics teacher, Miss Nana identified difficulties, misconceptions or mistakes of students through learning observation, and interviews with mathematics teachers, and used her own experience of teaching her private students or of becoming a student. Miss Nana predicted that in the relation and presentation learning, students would find it difficult to define the rules of a new relation constructed by exchanging the domain and the co-domain. This difficulty is predicted to arise due to a conceptual error in understanding the meanings of domain and co-domain. In the arrow diagram, the domain set is always placed on the left and the set of co-domains is always placed on the right. Students who tend to imitate what they see or hear are predicted to experience logical errors if the teacher and the book always present the domain set on the left and the co-domain on the right in the arrow diagram. This difficulty is also predicted to occur when students learn about functions and presentations. Students are predicted to experience difficulties in distinguishing the concepts of relations and functions. It is due to the misconception that functions and relations are two entirely different concepts.
Miss Nana’s understanding of KCS regarding difficulties, misconceptions or errors, influences her choice of teaching strategies. First, she chose to use student worksheets to direct students’ steps. Second, she used the question and answer method in implementing learning so that Miss Nana was able to identify student experienced difficulties, or some errors during the learning activities. Third, she provided examples of concepts with more variety and representing all possibilities so students can construct concepts better.

Miss Nana’s knowledge of KCS related to difficulties, misconceptions or errors also influenced the organization of learning material in her lesson plan. Miss Nana was deconstructing the content into parts that would be presented in stages so as not to burden the students. She deconstructed the content into five sections that she presented in order, i.e., she started by teaching the students to help improve their ability to form contextual problem situations. Then she helped students to construct the concept of relations/functions. She presented relationships and functions in various ways of presentation; next she helped students improve their ability to use facts, concepts, procedures, and mathematical reasoning; and finally focused on students’ ability to interpret and evaluate the results of problem-solving.

The students’ misconceptions, errors, or difficulties prediction influence two important parts in the prospective mathematics teacher’s planning, i.e. the selecting of teaching strategy and organizing the learning material. The first part corresponds to the theory of Zone of Proximal Development and scaffolding that the appropriate amount of guidance or scaffolding will help students develop their potential (Bruner, 1978; Vygotsky, 1978). The second part also corresponds to Bruner’s theory of the spiral curriculum. In this concept, information is structured so that a complex idea can be taught at a simplified level first, and then re-visited at more complex levels later on. Therefore, to teach how to formulate the problem situation in the form of mathematics, also the ability to use facts, concepts, procedures, and mathematical reasoning, then the presentation, must be preceded by a simpler problem such as a word problem. While teaching the ability to apply, interpret, and evaluate, the mathematical solution is placed most recently and is not written in the worksheet to reduce students’ burden on assignments.

**Knowledge of interests and student motivation influences the selection of the context of the problem, and strategies for activating students in the class**

Every teacher would desire their students to be interested in their learning materials or the way they present the materials. The presentation of learning material that attracts students’ interest and motivation makes students happy to learn,
and facilitates students’ easy understanding of the materials. Miss Nana collected information on students’ motivation based on her observation combined with her personal experiences. She predicted that the students would be less interested in learning carried out in groups because students tended to be egocentric. When carrying out discussions or group work, only several students participated while other students did not contribute ideas. However, if students learn individually, students need greater motivation to be always interested and actively involved in learning.

Based on the predictions made, Miss Nana took several actions as she presented in her lesson plan. First, she chose the context of mathematical literacy issues that may interest students and was close to them. For example, when teaching the concept of a function and its presentation, she used the scientific context.

The prospective mathematics teacher also realizes the importance of students’ motivation and interests. She predicted students’ interests and motivations when they are faced with learning assignments. She argued that the type of daily problem is one type of a task presentation that can motivate students to engage in learning. Getting into the mindset of a learner and approaching content from that mindset could encourage students’ engagement with the content, eliminating the need for superficial activities (Rice & Kitchel, 2016). Unfortunately, she ignored students’ difficulties in solving word problems and did not take steps to anticipate.

**Conclusions**

The finding of this study indicates the important role of knowledge of content and students in planning mathematical literacy integration into mathematics learning through the single case study of Miss Nana. The results showed that the prospective mathematics teacher gains the KCS through her personal experiences in working as a student, her observation in a mathematics classroom, her pedagogical knowledge obtained during the education program to identify students understanding, difficulties, and motivation. The KCS has a sufficient role for the prospective mathematics teacher in designing the learning. The knowledge of students’ mastery of the prerequisite materials affected the depth of the content; knowledge about students’ difficulties influences the selection of teaching strategies and organization of the learning material, and knowledge of students’ interests and motivation influences the selection of problem contexts and strategies to encourage students’ active participation in the class. Although this study is a case study with only one prospective mathematics teacher as the participant, the results
of this study can be used as a recommendation for institutions of mathematics teacher training. Examining the prospective mathematics teachers’ KCS may provide teacher education at higher education programs some information on how to train the prospective mathematics teachers, and develop their KCS to prepare their teaching on the integration of mathematics and mathematical literacy. Furthermore, it can further inform prospective teachers of the ways to integrate mathematical literacy into mathematics teaching.

Acknowledgments
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References


Abstract

In our report we briefly describe the existing state and tendencies in teacher training for primary schools. It is important to state that we are implementing a vital reform effort in our educational system. If we really want to emphasize the nature of changes in our school system, we need to be focused mainly on the use of those methods by beginner teachers that are not forming just knowledge, but also leading to creative use of knowledge in learning and life.

Keywords: education, neuroscientific, neurodidactics, research, Slovakia, emotionality

Introduction

The reality is that in the last 2–3 decades education changed. Various innovative approaches are used in teaching, based mainly on alternative pedagogy. This pedagogy, in fact, was unknown to us in 1990 and was referred to as “unwanted Western pedagogy”. The most common criticism of education is that little attention is paid to the development of pupils’ creativity, little use is made of innovations in the educational process, pupils have knowledge, but they are not able to use it, there are significant differences between pupils from different social strata and so on. One way to improve the course and results of education can be the use neuroscientific knowledge in education.
Selected views of neuropedagogy and neurodidactics

In recent years there have been many different theories of education in pedagogy. Each theory wants to contribute to improving the quality of education. This expansion is proof that pedagogy, in collaboration with other sciences, is striving to advance and reduce the discrepancy between what the school gives to the pupil and what the society demands.

One of the latest and most innovative approaches to education is a significant emphasis on the brain functions in the student’s learning process. This is the area which enters into the realm of education under the terms “neuropedagogy” and “neurodidactics.” Looking at literature on education, we find a lot of authors in Europe who very strongly accentuate neuroscientific views on education. They are, among others, Arnold (2002), Becker (2005), Dryden, Vos (1999), Friedrich (2005), Hermann (1990), Preiss (1998), Schachl (2006), Spitzer (2002), Ulrich (2006).

Essential requirements based on neuroscience views have been described by Caine and Caine (1997), commonly known as “brain-correct teaching”. In such a teaching approach, the emphasis is placed on the importance of the brain operations in learning. If education should be effective, we need to implement it in accordance with the brain functions.

What is neuroeducation? Neuroeducation is the combination of neurosciences and pedagogy with the goal of optimizing the learning experience. This discipline seeks to understand brain functions (how our brain assimilates, codes, or remembers information) and apply this to teaching. Consequently, teachers will develop better educational methods. Human beings use an integral process when they learn something where thought, feeling, and action are all inseparable in the learning experience. With this in mind, neuroeducation concentrates on finding ways to deepen the learning process by understanding how the brain learns and adapting classroom techniques to help achieve this. (Geake, 2009)

Neurodidactics also emphasizes that the brain has an extremely great potential that is not entirely utilized by human beings. The American brain researcher, Diamond (who also studied Einstein’s brain), said: “The brain is very dynamic, it changes from birth to the end of life. In a stimulating environment, it changes positively, but stagnates when not encouraged at all.” (Dryden, Vos, 2003, p. 127)

Neurodidactics is a relatively young discipline that represents an interface between neuroscience and didactics. Based on the findings of brain research, neurodidactics provides principles and proposals for effective (brain-based) teaching and learning (Sabitzer, 2011, p. pp. 167–177)
Learning is not just storing new knowledge in memory. In describing several aspects of the learning process in terms of the neurological research, Lorenz (2009) makes some recommendations to be taken into account, as they fundamentally change the perceptions of teaching and learning.

Table 1. Learning – a neuroscientific point of view

<table>
<thead>
<tr>
<th>INCORRECT APPROACH</th>
<th>CORRECT APPROACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Judging child’s abilities and IQ based on their ability to read and count, the</td>
<td>Let the children create a useful routine for their future life so that they do not “lose” the axons (part of the neuron splicing) due to lack of opportunity. Letters can be learned by e.g. modelling and singing, they can count on hands or count objects and so on. Discover science with your hands and senses, or by an exciting talk. Such a process leads not only to easier learning, but also to the fact that the individual will later, in all their life, reveal the essence, seek meaning in newness and the like, and that way they will develop his skills.</td>
</tr>
<tr>
<td>child gains the experience that any effort is unnecessary, loses self-confidence and confidence in their ability.</td>
<td>Let the children create a useful routine for their future life so that they do not “lose” the axons (part of the neuron splicing) due to lack of opportunity. Letters can be learned by e.g. modelling and singing, they can count on hands or count objects and so on. Discover science with your hands and senses, or by an exciting talk. Such a process leads not only to easier learning, but also to the fact that the individual will later, in all their life, reveal the essence, seek meaning in newness and the like, and that way they will develop his skills.</td>
</tr>
<tr>
<td>If you ask pupils to learn by means of memorization because it will bring them success (they know the curriculum, they will get a good grade), you will not be able to work with the pupils later on.</td>
<td>Use your and your child’s neuroplasticity and learn new approaches and skills to support children – learners, discover that learning can be fun that you never realised before.</td>
</tr>
<tr>
<td>If you want to activate and encourage boys more by comparing them to girls, it will not support good relationships with the opposite sex.</td>
<td>Rather, respect for different but complementary skills can enrich teaching and learning, thus improving the performance and results of both sexes, e.g. the curriculum can be handled “more practically” by boys and “more descriptively” by girls.</td>
</tr>
<tr>
<td>If you “nail” the boys down to a chair, to books, etc., it will reduce their future potential.</td>
<td>Let them use their sensorimotor skills during their childhood and the learning process to meet the great desire for knowledge. True, it’s not just about boys.</td>
</tr>
<tr>
<td>If you persuade pupils that their results and work are inadequate and that they will never master the subject matter, it will become a reality.</td>
<td>Conversely, if you encourage and persuade pupils about their abilities and talents, they can easily master the curriculum thanks to the neurotransmitters generated by the support.</td>
</tr>
<tr>
<td>If you remind the pupils of your childhood and efforts to succeed, you will place them against you because the time has changed completely and today’s students are confronted with a completely different reality.</td>
<td>Be keen on what children and pupils are interested in, what they want to hear, teach interestingly. By doing so, we also activate the hippocampus, the “reward centers” and the production of transmitters.</td>
</tr>
</tbody>
</table>
Emotions during learning do not only mean having a joyful and peaceful atmosphere in the classroom. Emotions are extremely important for education because they affect a production of hormones. Positive emotions, satisfaction, good mood, joy of cognition contribute to the production of dopamine and endorphins, which have a positive impact on cognitive processes, flexibility of thinking, creativity and interest in new ones. On the contrary, fear, anxiety, anger, fears of the future, etc., are conditions that produce increased levels of the stress hormones, i.e. adrenaline, noradrenaline and cortisol.

The reality, however, is that teachers are not always aware of the important functions of emotions in direct educational practice. These are the following:

<table>
<thead>
<tr>
<th>INCORRECT APPROACH</th>
<th>CORRECT APPROACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you criticize the learner, you make it more difficult for them to succeed.</td>
<td>Even a simple smile can improve the intercortical connectivity of the smiling, but also the one who is being smiled at. And it strengthens positive feelings, self-confidence and motivation to learn.</td>
</tr>
<tr>
<td>If you try to “bribe” the children with the promise of later reward, they will increase the resistance to what they had to do before.</td>
<td>Rather, use the approach to give the children a sense of doing well by a small praise, a smile, etc., that creates a positive connection with the desired work.</td>
</tr>
<tr>
<td>If you insist that a child should immediately do their homework, the child will lose time and the joy of learning the new knowledge.</td>
<td>Rather, do something to make the brain produce positive neurotransmitters, with the result that it will be easier for learners to do the tasks. If the learner watches a film after doing the homework before going to bed, it will “erase” the acquired knowledge. Music helps to keep the knowledge memorized – this leads to the fixation of knowledge.</td>
</tr>
<tr>
<td>If you teach 'black and white', the brain will avoid remembering what is being offered to it.</td>
<td>Connect teaching with your experience. It also provokes pupils to talk. Enhance learning as much as possible to make it interesting - such learning contributes to remembering the curriculum for a longer time.</td>
</tr>
<tr>
<td>If you highlight the mistake with a red colour, the error is “written” into the neuronal tissue.</td>
<td>It is more beneficial to write the correct answer with the red colour as this image is reproduced in &quot;neuronal tissue&quot;.</td>
</tr>
<tr>
<td>Who gets upset when making a mistake, will make mistakes for a long time.</td>
<td>Those who accept mistakes as something natural and see the possibility of improving, they will see a rapid progress.</td>
</tr>
<tr>
<td>Starting with details, then striving to unite them into a whole and creating an overall view is very difficult, even almost impossible.</td>
<td>Starting with an overall perspective before we come to the details is the way to learn new knowledge more easily.</td>
</tr>
</tbody>
</table>

Source: (Folta-Schoofs, K. & Ostermann, B. 2019, Schachl 2006).
• **Indicative function** – positive emotions awaken and support pupils’ interest in the curriculum. The learner acquires new information with interest.

• **Function of activation** – positive emotions support and develop cognitive processes. Without emotions, learning and interest in the curriculum are “stodgy”.

• **Function of modulation** - positive emotions support the optimal functioning of cognitive processes, they are a “reservoir of energy”, but they also mobilize all existing knowledge, making learning easier, more interesting and useful in other activities.

• **Metacognitive function** - positive emotions help learners to understand themselves, to be able to choose procedures leading to the effective activity, in other words, “learning to understand oneself, learning to learn”. (Pekrun, 2006, p. 315–341)

**Neuropedagogy and Neurodidactics in Slovakia – Selected Research Results**

In all European countries, this area is extremely emphasized and rapidly developing. This is evidenced by many publications, e.g. in Germany, Poland, Austria, Switzerland.

In Slovakia, neuropedagogy and neurodidactics are developing slowly and lagging behind the European trend. Only a few educators and psychologists deal with it, for instance, Duchovičová (2010) Petlák (2012),

In 2018 and 2019, Petlák conducted research that focused on the relationship between teachers and neuropedagogy. The research results will be published for the first time in this study. This paper focuses on some selected aspects of the research findings.

The survey was conducted based on interviews from the teachers who completed the questionnaire. The selection of the teachers was intentional, so that opinions could be obtained from all over Slovakia. It was attended by the teachers of lower secondary education and teachers of upper secondary education.

The condition was that the teachers were supposed to have taught for more than 10 years, and all of them were graduates of universities. Altogether, 306 teachers participated – 201 women and 105 men. We conducted the interview to objectify the questionnaire views. The interviews confirmed a number of aspects to which we need to pay close attention.

The main objective of the research was to identify:

• self-assessment while applying neurodidactics in the educational process,
teachers’ opinions on why neuropedagogy in schools is not being developed as needed,
- views on the perspectives of development of neuropedagogy in education.

Our research hypothesis:
We assume that neuroeducation does not attract the necessary attention in the educational process.

We did not notice any significant differences between men and women in the teachers’ opinions, nor did they differ according to the type of school, so we evaluate them comprehensively.

**Table 2. Knowledge of neuropedagogy and neurodidactics**

<table>
<thead>
<tr>
<th>My knowledge:</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>no knowledge</td>
<td>64</td>
<td>21.0</td>
</tr>
<tr>
<td>little knowledge</td>
<td>99</td>
<td>32.3</td>
</tr>
<tr>
<td>average</td>
<td>65</td>
<td>21.2</td>
</tr>
<tr>
<td>quite good</td>
<td>51</td>
<td>16.7</td>
</tr>
<tr>
<td>excellent</td>
<td>27</td>
<td>8.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>306</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The table shows that 78 (27+51), 25.5 % of respondents have excellent and good knowledge of neuropedagogy and neurodidactics. We consider this number unsatisfactory, i.e. the one expressing the reality that neurodidactics is not included in the work of our schools and teachers. Also, 64, (21.0%) of respondents claim that they do not have any knowledge of these theories is remarkable. In the interviews, we found out that most teachers in this category represent primary schools.

**Table 3. Where did you learn about neuropedagogy and neurodidactics?**

<table>
<thead>
<tr>
<th>I learnt about it</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>at various professional seminars</td>
<td>82</td>
<td>26.8</td>
</tr>
<tr>
<td>during university studies</td>
<td>75</td>
<td>24.5</td>
</tr>
<tr>
<td>while doing the attestation</td>
<td>74</td>
<td>24.1</td>
</tr>
<tr>
<td>self-study</td>
<td>64</td>
<td>21.0</td>
</tr>
<tr>
<td>cannot say</td>
<td>11</td>
<td>3.6</td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td>306</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Teachers’ responses show that education and in-service training play an essential role. Younger teachers with some pedagogical experience within 5–8 years most often
answered that they acquired basic knowledge about neuropedagogy and neurodidactics during their studies. Teachers with longer teaching experience said that they have acquired neuroscience in relation to education at various professional seminars (82, 26.8%), and 74 (24.1%) have gained this knowledge in another way, i.e. by means of attestation study. Around 64 respondents (20.1%) gained their own knowledge by self-study. Based on these findings, we notice a positive trend when compared with other European countries, and we started applying neuroscience in education much later, however, we noticed an increasing interest in this subject matter.

**Table 4. Using neuropedagogy in the teaching process**

<table>
<thead>
<tr>
<th>I use neuropedagogy</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>sometimes</td>
<td>121</td>
<td>39.5</td>
</tr>
<tr>
<td>yes – often</td>
<td>90</td>
<td>29.5</td>
</tr>
<tr>
<td>never</td>
<td>86</td>
<td>28.1</td>
</tr>
<tr>
<td>cannot say</td>
<td>9</td>
<td>2.9</td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td>306</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The results are consistent with previous findings on neurodidactics. Thus, out of the total number of respondents 211 (90 + 121), 69.0% use neuroscience in the teaching process. Although it is not entirely optimal, it suggests the teachers’ interest in applying newer approaches in their teaching. However, the number of the teachers who do not use neurodidactic approaches, a total of 95 (31%), is considered quite high. These findings are a challenge for the teachers themselves, the school management, but also for further education of the teachers, who ought to focus more closely on this subject matter.

We assumed that some teachers do not use neuropedagogical and neurodidactic approaches. However, we did not assume that it would be up to 216 positive respondents, but inclusive to those who said that they only sometimes use neuroscientific approaches. Therefore, we had included the following question into our questionnaire.

**Table 5. Why do you only sometimes use neuroscientific approaches in education?**

<table>
<thead>
<tr>
<th>Reasons</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>lack of knowledge</td>
<td>97</td>
<td>31.7</td>
</tr>
<tr>
<td>I prefer traditional teaching</td>
<td>54</td>
<td>15.7</td>
</tr>
<tr>
<td>demanding lesson preparation</td>
<td>48</td>
<td>8.8</td>
</tr>
</tbody>
</table>
Taking into consideration all the answers of the respondents, we can see that they do not have enough professional neuroscientific knowledge, which means they do not trust themselves, and prefer classical teaching that is less demanding in terms of class preparation. Although this is most widespread in our schools, it is true that education based on neuroscience is more demanding, requires a good diagnosis of the learners, and then, there must be the choice of the teaching methods, etc. These findings show that it is necessary to convince the teachers to a significant change in their views, but especially to the new approaches to education with an emphasis on innovation.

Neurodidactics deals with and focuses on several areas in education. We wondered what aspects of neuropedagogy are most important to focus on. We asked ourselves what is the most important thing that one can concentrate on in neuroeducation. We only asked 216 teachers who use neurodidactic approaches. The respondents had the opportunity to formulate their own answers. We divided their answers into the following categories:

Table 6. What neurodidactics do you focus on during your teaching?

<table>
<thead>
<tr>
<th>I focus on</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>motivation and emotions</td>
<td>84</td>
<td>38.9</td>
</tr>
<tr>
<td>cooperation of learners</td>
<td>56</td>
<td>25.9</td>
</tr>
<tr>
<td>learning styles of my students</td>
<td>46</td>
<td>21.3</td>
</tr>
<tr>
<td>using both hemispheres</td>
<td>20</td>
<td>9.3</td>
</tr>
<tr>
<td>something else</td>
<td>10</td>
<td>4.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>216</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The structure and the frequency of responses reflect fundamental aspects of neurodidactics. Respondents also identified the order of significance in their answers. The importance of motivation and emotionality in education is one of the fundamental aspects of neurodidactics (e.g. Schachl, 2006). Almost 84 (38.9%) of respondents commented on this requirement, nonetheless, the importance of both brain hemispheres in the process of education emphasized only 20 (9.3%) of respondents.
In 10 (4.6%) responses, there were differences, basically expressing the neuroscientific teaching requirements. For example, “The teaching process would be more interesting, if learning was based on the knowledge and opinions of children.” “The teacher must prevent his/her learners from experiencing stress.” “The most important thing is to know the learners - then I know what methods I shall choose.”

Neuropedagogy and neurodidactics are also referred to as 21st century education. The representatives of these theories even claim that it is a “revolutionary revolution in education”. We have researched whether teachers have such an opinion; the findings are as follows.

**Table 7.** Do you think neuropedagogy and neurodidactics will make a change in the future of education?

<table>
<thead>
<tr>
<th>Opinions of the teachers</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>education will change, but not significantly</td>
<td>189</td>
<td>61.8</td>
</tr>
<tr>
<td>education will change significantly</td>
<td>68</td>
<td>22.2</td>
</tr>
<tr>
<td>education will not change at all</td>
<td>42</td>
<td>13.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>306</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The respondents’ answers (257) are consistent with the prognosis that education will change. This is a positive finding: teachers are aware of the possibilities and needs of improving education. On the other hand, we must say that only 68 (22.2%) believe that education will change significantly. We admit that we expected a much higher percentage. The findings show that the so-called traditional (classical) teaching is still perceived as a basis for teaching, and is basically beyond any changes. This is also expressed by the attitudes of 42 (13.7%) respondents, who are clearly convinced that education will not change noticeably. These results also show the need to pay more attention to innovative approaches in education.

The last open question we asked was about what could contribute to neuroscientific approaches being used more frequently in education.

Teachers answered as follows:

**Table 8.** What could contribute to more frequent usage of neuroscientific approaches in education?

<table>
<thead>
<tr>
<th>Factors</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>professional seminars for teachers</td>
<td>118</td>
<td>38.6</td>
</tr>
<tr>
<td>professional studies in journals</td>
<td>94</td>
<td>30.7</td>
</tr>
</tbody>
</table>
It is clear from the answers that teachers are interested in the innovation of education with the use of the neuroscientific approach. They would accept professional seminars and specialized studies in journals that would focus on a concrete educational work. In the interviews we found that both professional seminars and professional studies in magazines are a source of inspiration for them. They stressed, however, that these seminars and studies were genuinely aimed at helping teachers – “not theory but also practice” – one respondent stated.

They expressed the opinion that studies are often written for the scientific community and less for the daily work of the teacher. This finding is an incentive for us, university teachers, to offer other teachers, in addition to the expertise, methodological advice and assistance.

This research has confirmed our assumptions. The teachers mentioned several other aspects in the interviews, for instance:

- they explained the lack of knowledge by the fact that when studying this area, it was not up-to-date, and in further education they were more concerned with the subject methodologies rather than with theoretical aspects of education.
- the acquisition of knowledge in this area is not systematic – more systematic attention must be paid to this area in the context of in-service teacher training;
- the examination has shown that non-scientific aspects do not receive systematic attention in direct education and that teachers act occasionally;
- the fact that teachers appreciate the emotional nature of education is satisfying, although not in connection with neuropedagogy; but it sounds promising that they would apply the abilities of newer approaches,
- it is satisfactory that most teachers are aware of and anticipate fundamental changes in education.

The above described research work is a selection of how teachers perceive neuropedagogy, but at the same time a look at what needs to be fundamentally changed and innovated.
Conclusion

Innovations that appear in the educational practice in Slovakia are represented by several terms such as neurodidactics, neuropedagogy, brain-compatible learning, and brain-based learning. It is a field that respects a multidisciplinary approach. Neuroscience is a basis for this innovative point of view that focuses not only on brain processes that happen during learning, but also on the lesson planning, respecting and developing learners’ individuality. Brain-based learning tries to implement the principles on a neuroscientific base, supporting creativity with the use of variable teaching methods, by strengthening an long-term-memory, to create enriched environment, as well as relaxation and coping strategies.

Learning involves changes of the strength of synapses, the connections between neurons in the gray matter of the brain. Based on the findings of brain research, brain-based teaching provides principles and proposals for effective teaching and learning. The main goal of these principles is to intervene in the pedagogical practice. As a matter of the fact, not all of them are brand new, but they confirm the theories and principles of progressive pedagogy and prove that they are effective. Therefore, an integration of brain-based learning in teacher training is necessary.

As our research has shown, the situation in Slovakia in the area of modernization is slowly improving, and neuroscience views on education are beginning to develop and influence it positively. However, the research has also shown that more attention needs to be paid to the preparation of the future teachers, as well as to teachers who are already in the job as far as the neuroscientific perspective is concerned. In-service teacher training can help significantly in this respect, however, we are convinced that neuroscience and its knowledge can greatly influence the efficiency and the quality of education.

References
Foreign Language Communicative Competence Formation of University Students by Using Interactive Teaching Methods

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Abstract
The article describes features in the developing of foreign language communicative competence by using interactive teaching methods. The directions of developing the students’ foreign language communicative competence are determined. Experimentation on skills in the development of this competence was carried out on the basis of interaction between participants. A comparative analysis of the results in experimental and control groups is proposed. The scientific novelty of the article is that it describes the effectiveness of the experience of using cooperation technology and the online platform Technology Entertainment Design in the developing of foreign language communicative competence of students.

Key words: foreign language, communicative competence, interactive technologies, online platform, teaching methods, educational process, teamwork

Introduction
The main goal of vocational education is to train a qualified specialist to an appropriate level and profile, competitive in the labor market, fluent in his/her profession and oriented in related fields of activity, ready for continuous professional growth, social and professional mobility.
It is difficult to overestimate the importance of knowledge of a foreign language in the modern world of Internet technologies. It is almost impossible to imagine the life of a person today who does not know a foreign language, because the majority of modern means of communication are focused on people who speak a foreign language. Hence, L. Bulanova assumes that construction of the learning process in the context of cross-cultural dialogues along with the idea of forming communicative competence of the future specialist is at the core of modern pedagogical practice (Tugusheva et al., 2018).

The introduction of a competence-based approach to the system of higher professional education is aimed at improving interaction with the labor market, increasing the competitiveness of specialists, updating the content, methodology and relevant learning environment (Barth et al., 2007).

The basis for the formation of foreign communicative competence of students is the use of interactive technologies – dialogic forms of interaction based on the development and modeling of various situations of free communication in the framework of the communicative process; the mastering of cultural and linguistic-cultural knowledge; the ability to work with various information sources; and having the motivation to learn a foreign language (Barahovich, 2000; Lester, 2014).

In accordance with the requirements of the modern specialist, skilled-experimentation on the formation of the foreign language communicative competence of students of nonlinguistic faculties of the University studying English was proposed.

**Literature review**

According to the Federal State Educational Standard of Higher Education “a competence” describes the specialist’s comprehensive readiness to use the knowledge, skills and personal qualities gained in standard and nonstandard situations of professional activity.

The formation and development of communicative competence plays an important role in the professional and personal development of the future specialist. Let us turn to the concept of “a competence” (Lee, Liu & Popovic, 2014).

According to the American approach the concept of “a competence” is defined through standards of behavior in the professional activity of a specialist, including behavioral indicators that reflect a specific algorithm of actions in the behavior of the specialist in a particular situation. This approach treats competence as the
main characteristic of a personality, which includes personal qualities, defining features of working with people, working with information, and achieving results of activity (Lester, 2014).

With the European approach the concept of competence is associated with the standards adopted in a particular organization (Ball, Thames & Phelps, 2008; Winter & Klotz, 2014). Within the framework of this approach, the emphasis is shifted to the description of professional tasks and is treated as a functional competence model, in which general professional and general cultural competencies are distinguished (Ball, Thames & Phelps, 2008). Assessment of the level of competencies is carried out in terms of the utility of a specialist for the organization, respectively, the specialist’s competence model includes his/her personal qualities necessary to achieve the goals of the organization, their readiness and ability to perform their professional duties, and the ability to adapt their resources to changing organizational tasks (Johnson & Johnson, 2017).

Russian scientists’ approach until recently considered the concept of professional competence as part of an aggregate of knowledge and skills. This approach does not reflect a focus on professional performance (Broadfoot, 1999; Zeer & Symanyuk, 2014). Difficulties of a sociocultural nature in understanding and translating texts include many different facts that cause communicative failures. Sociocultural features have a significant impact on understanding foreign-language texts (Telezhko, Biryukova & Kurilenko, 2019).

So five elements can be identified in the model of joint learning activities in a group: positive interdependence, personal interaction, individual responsibility, communication skills, and joint assessment of the progress of the work of both the individual participant and the group as a whole (Black & Wiliam, 1998).

The basic idea of learning in cooperation was developed in detail by three groups of American educators from the University of Johns Hopkins, the University of Minnesota, the group of J. Aronson, the University of California (Johnson & Johnson, 2017).

M. Canale and M. Swain identified 4 main types of competence, which in interaction with the system of knowledge and skills form communication:

- grammatical competence: vocabulary, pronunciation, spelling, semantics and sentence formation;
- sociolinguistic competence: correspondence of statements in form and meaning in a particular situation, contextual background;
- discourse competence: the ability to build holistic, coherent and logical statements in oral and written speech;
- Strategic competence: compensation by special means inadequate knowledge of the language, speech and
social experience of communication in a foreign language environment (Canale, & Swain, 1980).

In “Common European Framework of Reference: Learning, Teaching, Assessment” are identified the following types of communicative competences:

Linguistic (language) competence is a set of speech skills in four types of speech activity (listening, reading, writing, speaking) and language knowledge and skills (phonetic, lexical and grammatical).

Compensatory (strategic) competence is the ability of the student to apply their knowledge, skills, speech and social experience to fill the missing knowledge of a foreign language in the process of communication.

Sociolinguistic (speech) competence is the ability to use and transform language forms depending on the purpose, objectives and nature of the language situation (knowledge of semantic features, dialect, paralinguistic features).

Social competence is the ability to build interaction with native speakers based on knowledge of social reality (knowledge of behavioral scenarios in typical social situations).

Sociocultural competence is a set of linguistical-cultural, sociopsychological, and cultural knowledge (Common European Framework of Reference: Learning, Teaching, Assessment, 2012).

Based on the analysis of theoretical sources relating to the topic under study, it is noted that communicative competence is one of the key elements in the professional development of a future specialist. It is important to train people in comparing two cultures and reflecting them in a language (Guzhelya et al., 2018). Certainly, it is better to do this in their childhood, especially when talking about the bilingual children, but it is still possible in all ages (Khayrutdinov et al., 2017).

Communicative competence is based on three types of communicative activity: communication as influencing on the opinion or position of the interlocutor; cooperation; awareness of the spoken and perceived content of the thought, text (Spancer-Oatey, Franklin, 2009). At the executional level understanding is realized as a result of comprehension of the statement subject matter. According to psychologists, in the process of translation at the executional level, “the intention of the statement in the target language is formed” (Dolzhikova et al., 2018).
Methodology of Research

The sample of the study consisted of 200 students of nonlinguistic University faculties studying English. Both experimental (EG) and control group (CG) consisted of 100 people.

The survey was conducted in order to identify the foreign language communicative competence importance of the future specialist in their chosen profession. The questionnaire consisted of two blocks of open questions.

The first block was aimed at students’ self-assessment of their level of communicative competence in a foreign language and its significance for professional activity and personal development.

The second block is aimed at identifying the level of organizational and methodological training in the development of communicative competence in a foreign language by students.

The assessment of the level of organizational and methodological training in the development of this competence by students revealed dissatisfaction with the process of organizing interaction between students, the pattern and lack of realism of communicative situations, their inapplicability in real life.

To assess the level of development of communicative competence, testing and solution of case studies were carried out. Testing included a series of test tasks for each component of communicative competence. Students carried out 40 test tasks in listening, reading, writing, speaking to assess language knowledge and skills (phonetic, lexical, grammatical) and 5 case tasks to assess sociolinguistic and sociocultural competence in native language situation. The correct execution of each task was estimated at 5 points.

The decision of the case was evaluated by the following criteria:

- discussion of the information received in the case;
- the ability to highlight important information;
- ability to exchange views and draw up a plan of work on a problem;
- the ability to find solutions to problems and discuss each of them;
- the ability to negotiate, answer questions;
- the ability to give a reasoned answer.

According to this distribution the level of formation of foreign language communicative competence of students of the control and experimental groups did not differ significantly in the testing results.

The formative stage lasted for one semester. During one semester traditional teaching methods were using in the control group, the pilot group carried out purposeful work on the formation and development of foreign language commu-
nicative communication based on cooperation technology. It was organized group work where student had to discuss various communication situations and cases on the Technology Entertainment Design (TED-ed) online platform.

The choice of cooperation technology for the developing foreign language communicative competence of students is based on ensuring the transition from the traditional teaching system to the effective interaction of all students with each other and with the teacher.

In small groups information is exchanged between all participants in the activity, which ensures the effective development of the communicative competence of each of the students.

Training on this technology was carried out in the following topics of the course: “Generation Z: What Is Special About the Young Generation?”, “How Do Young People Express Their Individuality?” (Saleh, 2013), “Why Do Young People Choose a Subculture?”, “Is the Social Security System Fair?” (Macsuga Gage et al., 2012), The Perfect Social State? (Narag, 2016).

At the end of the semester was conducted a post-test.

**Results of Research**

According to the questionnaire, 63% of students believe that the communicative competence of a modern specialist is the most significant in the professional sphere. Knowledge of a foreign language allows them to actively participate in both personal and professional communication with native speakers.

Nevertheless, 67% of students pointed to a rather low level of development of their skills in foreign language communicative competence, explaining this by the low quality of the methodological organization of the educational process.

About a half of the students (44%) were completely satisfied, because they give following answers “focus on reading and translating information, and not on communication in educational process”, “insufficient practical knowledge”, “a language and psychological barrier”.

24% of the students noted that the existing training is not enough to develop communicative competence in a foreign language, while the reasons were as follows: “insufficient knowledge of a foreign language in the field of grammar, vocabulary” (32%), “insufficient linguistic and cultural knowledge” (36%), “lack of communication skills” (49%).

Only 33% were satisfied with the educational process for developing communicative competence, explaining this by the opportunities provided for self-development.
The professional motives for communicative activities in a foreign language were chosen by 65% of students (“career”, “work abroad”, “freelancing at the international level”, “communication in social networks”, “opportunities in the future”). The motives for cooperation were chosen by 35% of students (“understanding the culture of native speakers”, “the ability to understand a wide range of information in a foreign language”, “understanding the mentality of native speakers”) (Podesta et al., 2014). The comparative results are presented in the Table 1.

**Table 1.** The results of the study of the level of development of foreign language communicative competence in the experimental and control groups at the beginning and at the end of the semester

<table>
<thead>
<tr>
<th>Level of development</th>
<th>At the beginning of the semester</th>
<th>At the end of the semester</th>
<th>The overall dynamics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EG, %</td>
<td>CG, %</td>
<td>EG, %</td>
</tr>
<tr>
<td>Testing</td>
<td></td>
<td></td>
<td>EG / CG, %</td>
</tr>
<tr>
<td>High level</td>
<td>16</td>
<td>12</td>
<td>32</td>
</tr>
<tr>
<td>Medium level</td>
<td>36</td>
<td>37</td>
<td>48</td>
</tr>
<tr>
<td>Low level</td>
<td>48</td>
<td>51</td>
<td>20</td>
</tr>
<tr>
<td>Case tasks</td>
<td></td>
<td></td>
<td>EG / CG, %</td>
</tr>
<tr>
<td>High level</td>
<td>14</td>
<td>15</td>
<td>26</td>
</tr>
<tr>
<td>Medium level</td>
<td>29</td>
<td>31</td>
<td>43</td>
</tr>
<tr>
<td>Low level</td>
<td>57</td>
<td>54</td>
<td>31</td>
</tr>
</tbody>
</table>

**Discussion**

The positive dynamics of the development of foreign language communicative competence of students in the experimental group suggests that its development allows not only to improve foreign language communicative skills in group communication, but also to realize the principle of individualization of learning, to create a comfortable psychological climate that contributes to the effective application of various activities, as well as the development of creative thinking, skills independent work. It is worth noting that practice based on interactive methods as a whole is of vital importance in the process of minimizing the language barrier and intensifying intragroup speech activity (Tugusheva et al., 2018).

The functional components of the methodological organization of the educational process in the framework of the formation and development of foreign language communicative competence can be highlighted:
Analytical: search for possible actual communicative situations for professional and personal communication, options for the development of the situation and analysis of the results obtained;

Design: modeling of communicative situations, consideration of complexities, possible consequences, etc.;

Communicative: organization of the communicative process and effective interaction between its participants, providing students with constructive feedback, developing the ability to ask questions, argue their position, exchange information and establish and maintain constructive relations with the participants of the communicative process on this basis.

According to the results of the study it is advisable to conclude that the problem of choosing one or another interactive technology focused on foreign language communicative interaction is that the learning process provides practical skills development. Moreover, a teacher should pay special attention not just to the minimal lexis for the chosen topic but also to phraseological units which contain the national character and convey it much more vividly than common vocabulary (Kajumova et al., 2017).

Thus, in view of the analysis of the results obtained during the experiment, let us highlight the main recommendations for modeling the educational process in the process of further learning a foreign language at the University:

- Full compliance of textbooks, handouts and their adaptability for educational institutions in accordance with the personal and professional needs of students, international standards and the requirements of the labor market;
- Compliance of the structure and content of the material with the goals and objectives of the students’ communicative activities;
- Focus on the development of foreign language communicative competence, the acquisition of knowledge and skills, which is ensured by the presence of interactive tasks to systematize and summarize the knowledge gained, enhance skills and skills in the process of application of the studied material in practice.

Conclusions

Active teaching methods used during the semester allows learners to be subjects of the communicative process: to set a goal, to plan its achievement, to independently acquire new knowledge, to evaluate the results of the activity of
themselves and the interlocutor. Organizing the development of foreign language communicative competence of students based in the University using interactive technologies, in particular, cooperation technology and the online platform TED-ed, allows students to be involved in active communication activities.

Also, this technology prepares students for activity in the conditions of constant variability of the social environment by developing their awareness; provides high foreign language knowledge, repeated repetition of the material being studied, teaching each other in a dialogue, allowing them to develop their individual skills, communication skills and skills of analysis, synthesis, comparison.

A variety of forms of cooperation allows students to develop new roles for them: a participant in the communicative process, a consultant, and an opponent. In the framework of using the technology of cooperation with the aim of developing foreign language communicative competence the individual independent work of the student is included in the team work and follows from it.

The result of cooperation technology affects the result of individual and collective work of the whole team, which allows them to apply existing knowledge and skills and improve them in the process of discussion, decision making, problem analysis, and formulation of solutions to it. The possibility of using interactive technologies allows us to develop two types of motivation: self-motivation which improves knowledge and allows you to put it into practice, motivation is formed and enhanced through individual and teamwork, as well as demonstrating that a student can use a foreign language for communication purposes.

Thus, modern foreign language teaching in the university within the framework of learning technology in cooperation is the implementation of the principle of individualization of education, it takes place in a comfortable psychological climate, it includes the effective use of various activities, as well as allowing for the development of creative thinking, skills of independence, team, group work and communicative competence.

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Video-Based Interaction through Teacher Working Group Forum to Increase Elementary School Teachers’ Professionalism

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Abstract
Video-Based Interaction (VBI) for teachers does not have any meaning without the presence of an instructor and a process of interaction. This study aimed to analyze the effectiveness of VBI in Teacher Working Group (TWG) forums to improve teachers’ professionalism in science learning in elementary schools. This study involved 36 teachers in rural and city areas by using a one group pretest - posttest design. N-gain was used to analyze the effectiveness of VBI in TWG forums to improve teachers’ teaching skills. The study showed that VBI significantly increases teacher professionalism to reach professional levels. The results were also consistent with the N-gain category of teacher professionalism in planning, implementation, and relations components.

Keywords: inquiry, teacher professionalism, teacher working group forum, video-based interaction

Introduction
Teachers are responsible for the next generation of a nation. Therefore, it is important to continually improve teachers’ teaching competence. Teaching which involves the active role of students can cognitively present comprehensive learning in accordance with teacher professionalism (Strouse, Nyhout, & Ganea, 2018). The professional teacher needs to meet requirements for core competence, social
responsibility, and esprit de corps. A previous study (Dragoș & Mih, 2015) showed that professional teachers were able to produce effective teaching and better educational outcomes. Professional teachers are able to teach using learning models which promote lesson and student development. Younger students have limited ability in expressing verbally information they are processing about science concepts. Constructivism in the inquiry process makes learning meaningful (Erlina, Susantini, Wasis, Wicaksono, & Pandiangan, 2018).

Guided inquiry is suitable for teaching at elementary level. The facts show that 22.65% of science teachers still use teacher-centered learning for teaching science. Teachers tend not to have enough courage to play the role of facilitators of learning (Erlina, Susantini, & Wasis, 2018). An interesting fact was found. When 10 teachers who were asked about their perspectives on inquiry there were 10 different answers. Even researchers have difficulty assessing inquiry because it can look very different from one classroom to another (Harlen, 2013). It was shown that the teachers’ ability to implement inquiry in learning was still weak.

One of the ways to maintain teacher professionalism is a Teacher Working Group (TWG). The TWG is a forum that can be used by elementary school teachers to foster and improve their abilities after completing formal education. Reflection on students’ pre-concept in learning is important as a form of dissatisfaction of beginner teachers with the traditional learning process. Teacher preparation can be considered as a process of conceptual change and teachers’ background (Shannag, Tairab, Dodeen, & Abdel-Fattah, 2013). TWG forum does not play a role as the goals achieved.

In teaching the students, teachers need to play a role in designing instructional experiences which are suitable for students in the 21st century. Training and debriefing enable teachers to adapt to the information society, the learning society, and transformation in technology (Aksakalli, 2018). Government support in the form of the Industrial Revolution 4.0 Road Map still needs to be improved specifically to build teacher professionalism. Furthermore, educational videos can be observed anytime and anywhere with the time and space needed (Sherin & Van, 2005). Learning can be done observing others. This means that the teacher can observe a video and learn how to teach according to these observations (Slavin, 2009).

Teacher observation of teaching through educational videos can help them learn how to develop and improve teaching skills over time. Evaluation of results indicated that the use of technology in the form of videos could provide live coaching to improve teacher professionalism (Funderburk, Chaffin, Bard, Shanley, Bard, & Berliner, 2015). However, educational videos still have some weaknesses
for users (Agommuoh & Nzewi, 2003). In rural areas teachers may have limited access for watching videos (Davis III, Brestan-Knight, Gillis, & Travis, 2018). The use of video as a pedagogical tutorial instrument for groups of teachers has some weaknesses, such as the fact that the video cannot be paused and analyzed. The video presents important material but it does not make for training purpose.

The development of a Video-Based Interaction (VBI) tutorial model to improve teacher professionalism was conducted by involving the interaction process as an understanding elaboration process involving the role of TWG forum. The stages of the VBI tutorial model are (1) analyzing videos; (2) determining topics in the curriculum; (3) preparing lesson plans according to the topic; (4) discussing the draft of lesson plan in the TWG group; (5) simulating enactment of the lesson plan draft in the form of peer teaching; (6) reflecting on the peer teaching; (7) implementation in each teacher’s class and (8) evaluating the improvements.

**Research Problem**

This study was conducted in response to the results of a preliminary study made to improve teacher professionalism using tutorials on videos which showed that watching the video needed to be followed up in the form of an interaction process to overcome misconceptions and ambiguities in interpretation of the video (Budiastra, 2007). This study was conducted to see the continuity of the teachers’ professional capacity building program through the TWG-based Teacher Qualification program using a distance learning system.

**Research Focus**

This study focused on the analysis of the effectiveness of VBI in the TWG forum in the context of distance learning leading towards teacher professionalism in terms of their teaching abilities. The research questions include: (1) Is there any (statistically) significant effect on teacher professionalism before and after the tutorial process using VBI; (2) What is the category of teachers’ teaching ability after the VBI implementation; and (3) Are there any differences in teacher professionalism in teaching science on 2 testing topics.

**Methodology of Research**

**General Background of Research**

The scope of this study was the application of VBI in improving teacher professionalism. The study focused on the ability of teachers to teach using inquiry
models in science subjects in elementary school, especially the topic of Simple Electricity and Water. Teacher professionalism was analyzed to determine whether there was any difference in the pre-test and post-test scores. The N-gain calculation used to categorize teacher professionalism based on the high, moderate, or low criteria in 2 test groups. This study was conducted for 10 months in Tabanan, Bali (G1) and East Belitung, Bangka Belitung (G2) Indonesia.

**Sample of Research**
A total of 36 science teachers in elementary schools were divided into two test groups involved in the tutorial which was the subject of this research. The samples were selected using purposive sampling where samples involved had specific requirements according to the objectives of this study (Annan, Adarkwah, Abaka-Yawson, Sarpong, & Santiago, 2019). Teachers who followed the tutorial were required to be a member of the TWG forum.

**Instrument and Procedures**
This study employed pre-test and post-test with replication design namely O(Pre-Test) x (Treatment) O(Post-Test), (Fraenkel, Wallen, & Hyun, 2012). Replication involved 2 TWG groups. The pre-test was conducted with teachers before the tutorial and post-test was carried out after the implementation of the VBI by tutors who had been well-trained. Teachers watched and studied the videos about examples of inquiry-based learning scenarios independently before VBI implementation. The implementation of VBI needed planning, video-based pedagogic material, and teacher worksheets. The learning process as a VBI application by the teacher to students used a syllabus, lesson plans, and inquiry-based student worksheets. The steps for implementing VBI consists of (1) analyzing the video; (2) determining topics in the curriculum; (3) preparing lesson plans according to the topic; (4) discussing the lesson plan draft in the TWG group; (5) simulating lesson plan draft in the form of peer teaching; (6) reflecting on peer teaching; (7) implementing the lesson plan in each class; and (8) evaluating the improvements. VBI integrated the stages of innovation tutorial with TWG in the context of distance learning (DL). The VBI mechanism is presented in Figure 1.

![Figure 1. The Implementation of VBI](image-url)
The components of evaluation of teacher professionalism consisted of (1) planning, the ability to prepare the lesson plan; (2) implementation, the ability to conduct the learning process; and (3) relations, which related to teacher organization of the learning (Qadeer, Tahir, & Chishti, 2018). Planning was evaluated through written assignments while observations were conducted to evaluate the implementation and relations.

The teachers’ professionalism score for each component is described as follows. A score of 5 means all indicators were met properly. A score of 4 means most indicators were fulfilled well. A score of 3 means all indicators were met but not well. A score of 2 means most indicators were fulfilled but not well. A score of 1 means a small number of indicators were met but not well. The teacher reaches the professional level if each component obtained at least 4.

Data Analysis

The percentage of score ranges for each stage was interpreted as follows: (1) professional: if the score percentage is >66.67%; (2) quite professional: if the percentage score is <66.67% and ≥ 33.33%; and (3) unprofessional: if the score is < 33.33%. Teacher professionalism can be said to be improving according to the N-gain (post-test score – pre-test score) / (100 – pre-test score) (Hake, 1998). Therefore, the criteria were set as follows: (1) if N-gain ≥ .7 (high), (2) if N-gain is > .3 and < .7 (moderate), and (3) if N-gain is ≤ .3 (low).

The effect of the VBI application through the working group forum in the context of DL to improve elementary school teachers’ professionalism was analyzed using the scores obtained in the pre-test and post-test by using a Sign Test statistic to check whether the scores met the requirements for data normality or were non-parametric. The statistical analysis software used in this study was IBM SPSS 22.

Results of Research

The results of this study present the supporting data on the effectiveness of the VBI as a whole as follows: (1) pre-test and post-test teacher professionalism; (2) N-gain professionalism of teachers; and (3) statistical analysis of the effectiveness of VBI. Figure 2 shows the percentage of N-gain criteria for the components of teacher professionalism in the 2 test groups. The percentage of N-gain teachers who got high criteria on the implementation and relation components was higher than on the planning component. Table 1 presents the N-gain value of each component of teacher professionalism. N-gain values of the professionalism
components of planning, implementation, and relation were respectively medium, high, and high.

Table 1 visualizes the average professionalism of each teacher obtained after the implementation of various teaching strategies as a general inquiry routine in the 2 test groups. The initial professionalism test of the teachers showed that they were unprofessional and most indicators were fulfilled but not satisfactory. The mean results in the TWG in Table 1 of the test of teacher professionalism in each group after VBI implementation showed that most indicators were well met.

Table 1. Average Scores of pre-test, post-test, and teacher professionalism N-gain in both testing groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Component</th>
<th>Pre-test average score</th>
<th>Professionalism</th>
<th>Post-test average score</th>
<th>Professionalism</th>
<th>N-gain</th>
<th>N-gain level</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>Planning</td>
<td>42.31</td>
<td>Adequate</td>
<td>78.85</td>
<td>Yes</td>
<td>.6</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td>Implementation</td>
<td>21.15</td>
<td>No</td>
<td>87.18</td>
<td>Yes</td>
<td>.8</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Relation</td>
<td>45.51</td>
<td>Adequate</td>
<td>90.38</td>
<td>Yes</td>
<td>.8</td>
<td>High</td>
</tr>
<tr>
<td>G2</td>
<td>Planning</td>
<td>26.67</td>
<td>No</td>
<td>78.33</td>
<td>Yes</td>
<td>.7</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Implementation</td>
<td>23.33</td>
<td>No</td>
<td>86.67</td>
<td>Yes</td>
<td>.8</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Relation</td>
<td>55.00</td>
<td>Adequate</td>
<td>91.67</td>
<td>Yes</td>
<td>.8</td>
<td>High</td>
</tr>
</tbody>
</table>

Figure 2. Percentage of N-gain Components Criteria for Teacher Professionalism in Both Testing Groups

Statistical analysis of teacher professionalism is presented in Table 2. Teacher professionalism in each component of professionalism in all groups showed the
same results using Sign Test statistics, namely that all 2-tailed asymptotic results were significant ($p < .05$) also in the non-parametric test applied. Table 2 concludes that VBI had a significant influence on teacher professionalism with a significance level of 5%.

**Table 2. Statistical results from the sign test on teacher professionalism in both test groups**

<table>
<thead>
<tr>
<th>Group</th>
<th>Components</th>
<th>$N$</th>
<th>Differences</th>
<th>Ties</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Negative</td>
<td>Positive</td>
<td></td>
</tr>
<tr>
<td>G1</td>
<td>Planning</td>
<td>26</td>
<td>0</td>
<td>26</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Implementation</td>
<td></td>
<td>0</td>
<td>26</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Relation</td>
<td></td>
<td>0</td>
<td>26</td>
<td>0</td>
</tr>
<tr>
<td>G2</td>
<td>Planning</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Implementation</td>
<td></td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Relation</td>
<td></td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3 presents statistical analysis of teacher professionalism N-gain. A Sign Test was used in the distribution of N-gain data on the topic of Simple Electricity, Water or other science topics based on non-parametric data.

**Table 3. Statistical results from sign test on teacher professionalism N-gain in both test topics**

<table>
<thead>
<tr>
<th>Group</th>
<th>Components</th>
<th>$N$</th>
<th>Differences</th>
<th>Ties</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Negative</td>
<td>Positive</td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>Planning</td>
<td>36</td>
<td>0</td>
<td>5</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Implementation</td>
<td></td>
<td>0</td>
<td>5</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Relation</td>
<td></td>
<td>0</td>
<td>3</td>
<td>33</td>
</tr>
</tbody>
</table>

Table 3 concludes that there was no significant difference in the level of N-gain in the implementation of VBI in TWG in the context of distance learning towards building the professionalism of elementary school science teachers. The significance level of 5% was attained in each component of teacher professionalism.

**Discussion**

From the results of the pre-test and post-test, it can be inferred that VBI successfully helped in increasing the professionalism of elementary school teachers in TWG. Table 1 provides information on the initial teacher professionalism
obtained in both test groups before the implementation of VBI in the TWG. The initial professionalism of the teacher was categorized as low because a small or large number of indicators were fulfilled but not implemented well. A weakness in elementary teacher science education is the fact that scientific concepts and how to teach them are two separate subjects. Most lectures in teacher education mostly given by lecturers who had no experience of teaching science in elementary school. Moreover, the lectures run over a relatively short period of time (Hinduan, 2001). This condition leads to the domination of lectures in science teaching in elementary school. Teachers were less able to activate students’ thinking process and the lessons provided were not related to students’ daily lives (Budiastra, 2007).

The TWG was an available source of information. However, the teachers did not participate in it.

The implementation of VBI produced a professional level with average results of professionalism scores in each test group, indicating that most indicators were well met. As far as the application of video is concerned, it was found that videos are not meaningful to the teacher without the presence of an instructor as support for the interaction process. The application of VBI was not only video-based but also involved the teachers’ high-level ability to analyze videos. Analysis activity encouraged thinking and elaboration (Erlina, Susantini, Wasis, Wicaksono, & Pandiangan, 2018). VBI implementation encouraged teachers to interact in the form of discussion after watching the learning process in the video. The purpose of the discussion stage for teachers was to get an interaction process between colleagues or people with ability in the relevant fields and forums. The interaction was focused as an elaboration of the video analysis phase presented in the initial stages of VBI. The VBI was not only limited to provision of theories but to how these can be implemented in the classroom.

Planning

The implementation of VBI with elementary school science teachers produced a moderate N-gain on the planning component. The results of the teacher professionalism test at least indicate that most indicators were well met. The planning component showed teachers’ ability to design learning improvements. Teachers who had gone through the VBI tutorial were at least able to determine the learning objectives, organize the materials and the learning process, and evaluate the learning scenarios. The moderate N-gain on the planning component indicates that the wealth of knowledge that had been acquired through routine information and experience can produce good science learning planning (Ward & Haigh, 2017). Some teachers, for example in the G1 group, initially had sufficient planning skills,
which may have given them enough information access support for them to learn independently. The N-gain category achieved was supported by the role of TWG in implementing VBI. Teachers were also involved in determining topics and designing science learning scenarios based on relevant contexts through information and communications technology (Rojek, & Leek, 2019).

**Implementation**

Table 1 and Figure 1 provide information that the N-gain of the implementation component was high and the highest number of teachers received a high-N-gain in this category. Video footage in the early stages of VBI could help elementary school teachers to describe the steps or phases of teaching in a more realistic and interesting way than verbal descriptions. Teachers could observe the video and learn how to teach according to the observation (Slavin, 2009). In the implementation phase in the classroom, the teachers were able to help students understand the importance of the material to be taught and so optimize the achievement of student learning outcomes (Ediger, 2018). The integration of VBI with a distance learning program at the Open University also involved the teacher in the independence of teaching and using learning materials before the tutorial model was conducted. The VBI stage required teachers to implement a lesson plan that had been discussed through peer teaching. The VBI stage ended with an evaluation to achieve compressive teacher knowledge. Then, improvement of teacher professionalism was carried out by the teacher independently. Teachers took the initiative with their resources and activities, independently utilizing the facilities available (Pandiangan, Sanjaya, Gusti, & Jatmiko, 2017). Students do not only think in the learning process but also develop an emotional link to their own classroom (Sántha, 2019).

**Relation**

The implementation of VBI in TWG in the context of distance learning produced high N-gains in the relations component. The teachers’ ability in the relation component at least indicated that most indicators were well met. The pre-test scores in the G1 group were weaker because the social conditions in this area were more heterogeneous and the communication system was more developed. G1 and G2 were both inhabited by a pluralistic population, while G2 had the condition in which the region was dominated by indigenous people. Thus, the initial relation in G2 was stronger. Several VBI stages facilitated teachers in discussion. Discussion activities could construct feedback that comprehensively supported knowledge (Harlen, 2013). In order to improve the quality of human resources, collaboration
can be realized by developing a colleague network through ways such as a distance learning program. Distance learning and virtual learning programs were investigated, developed, and expanded based on the latest technological capabilities even though face-to-face learning still exists (Wicaksono, Matlazim, & Wasis, 2017). The implementation of VBI was a follow up from the Open University which separated universities and teachers to train teacher professionalism as a whole in the TWG forum. Table 1 shows that the G2 group had weaker planning ability than G1. The integration of distance learning in the VBI implementation made the tutorial process easier for widely distributed for teachers in a rural area who had limited ability to increase their knowledge (Davis III, Brestan-Knight, Gillis, & Travis, 2018).

The effectiveness of teacher professionalism in the 2 groups in the components of planning, implementation, and relation showed similar results. Table 2 shows there were differences in teacher professionalism before and after VBI implementation. VBI had a significant effect on teacher professionalism in the G1 and G2 groups with a significance level of 5%. The results of this study are relevant to the results of teacher professional development on an inquiry model. In the short term, professional development training was effective in increasing teacher confidence ($t = -6.57; p = .00$), self-efficacy ($t = -5.80; p = .00$), and process skill ($t = -5.76; p = .00$) (Sağlam & Şahin, 2017). There was no significant difference caused by the implementation of VBI to the teacher professionalism components on the 2 test topics at a significance level of 5%. Table 3 shows the consistency of teacher professionalism using VBI. Table 2 and Table 3 conclude that teachers needed systematic intervention to stimulate their thinking and teaching skills (Jatmiko, Prahani, Supardi, Wicaksono, Erlina, Pandiangan, & Althaf, 2018). The learning model plays a role in controlling cognitive and learning process (Cekić-Jovanović, Đorđević, & Đorđević, 2019).

**Conclusions**

The results of this study show a way to support the growth of teacher professionalism. The VBI implementation effectively enhanced teacher professionalism in inquiry-based science learning in elementary schools through TWG in the context of distance learning. VBI had the effect of a significant increase between teacher professionalism test scores before and after a tutorial with a 2-tail asymptotic significance of $p < .05$. Teacher professionalism achieved professional criteria consistently on two test topics. The presentation of audio-visual learning models
and information sources through discussion with colleagues was able to improve teacher planning skills in teaching, to implement learning models relevant to the context, and to build relationships that support the pedagogical quality of the teachers.

**Acknowledgment**
The writers would like to thank the Government of the Republic of Indonesia especially the Ministry of Finance and Open University Research Center for the funds under the letter numbered 2814/UN31.2/DN/2016 to complete this study. The writers also would like to extend our gratitude to several elementary schools and validators who made it possible for this study to be carried out properly.

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Effectiveness of the AA “4C” Authentic Assessment Model: A Single-Case-Research (SCR)

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Abstract

The purpose of this study is to show the effectiveness of the AA “4C” model in increasing teachers’ abilities. The study is a Single Case Research using the ABABA design. The subject of the study was a natural-science teacher. Results of the observation conducted continuously by three observers show that each of the teacher’s ability items improves from the first condition, to the second condition, and to the third condition. This finding is supported by the results of the Manova technique showing that the AA “4C” model is shown to be effective in improving teachers’ abilities in conducting authentic assessment.

Key words: authentic assessment; effectiveness of the AA “4C”

Introduction

In this 4.0 industrial revolution era, the demands for qualified teachers are inevitable. Teachers are required to teach students higher-order thinking skills such as analysis, evaluation, and creation. The higher the teachers’ quality, the higher the quality of the instructional processes, and, in its turn, the higher the quality of education. This is in line with Marzano, Frontier, & Livinnhston (2011) who state that the more positive activities in the classroom, the higher the learners’ achievements. Meanwhile, Barber & Moursheed (2012) state that students’ achievement begins with effective teachers and the school principal. The importance of teachers’ quality in improving the quality of graduates also applies to teachers of natural
science (NS) as a subject matter. However, it is a fact that this is not always true; there are teachers who are not capable of carrying out their task. Kartowagiran & Jaedun (2016) found that the level of understanding of authentic assessment by Junior High School NS teachers is low. One reason for this are numerous definitions of authentic assessment.

The results of the study of theories and/or ideas of Wiggins (1998), Tombari & Borich (1999), Earl, Hargreaves, & Schmidt (2002), Svinicki (2004), Frey, Schmitt, & Allen (2012), Gulikers, Kester, Kirschner, & Bastiaens (2008), Nitko & Brookhart (2011), Raymond, Homer, Smith, & Gray (2012), Vu & Alba (2014), Brown, Irving, & Keegan (2014) are summarized and used in this research. Within this terminological framework, authentic assessment is one that is real and factually assesses from inputs, processes, to outputs. It is integrated with teaching and it includes the assessment of skill competence, the assessment of knowledge competence, especially at the higher order (HOT), the assessment of attitude, especially the aspects of attitudes attached to the basic competence being studied.

Using the results of a 2016 study, Kartowagiran & Jaedun (2017) developed an authentic assessment model called an AA “4C”. This model covers 4C, i.e. four competences, including assessing: (1) knowledge competence, (2) skill competence, (3) attitudinal competence, (4) the consistency in implementing the model. The consistency of the model use is characterized by four principles: (a) setting the knowledge competencies at higher-order thinking skills (HOTs), (b) assessing attitude competencies, especially those of the basic competencies, (c) focusing on four students at a session, and (d) running the assessment holistically, realistically, and as integrated into the subject matter. This coverage of the four competencies is obtained from various theories and research findings. This model has been validated theoretically, but has not been verified in field practice. The present study, therefore, is intended to show the effectiveness of the AA “4C” model in improving teachers’ abilities while implementing authentic assessment.

**Methodology of Research**

The study was a Single-Case-Research (SCR) used the ABABA design standing for the preliminary situation (A1), first intervention (B1), second condition (A2), second intervention (B2), and third condition (A3) (Kratochwillv & Levin, 2014). The SCR model was selected in order to describe in detail the improvement in each item of the teacher ability while conducting authentic assessment. This purpose is not attainable when an experiment, action research, or a case study are used.
The study was conducted in a Junior High School in Yogyakarta City during September and October 2017, involving one natural science teacher. Data were obtained by three observers who performed continual observations on three instructional sessions, namely the preliminary condition, the second condition, and third condition. The instructional subject matters were Earth Structure, Solar System, and Solar and Lunar Rotation and Revolution. In addition to the observations, the teacher’s ability in conducting authentic assessment was also assessed by 31 students. The development of the teacher’s ability in conducting the authentic assessment from preliminary condition to the second condition and the third condition was observed by three observers and assessed by 31 students.

‘Intervention’ in this context is the training given to the teacher who is the subject of this study. She was trained and given examples of how to make lesson plans, to prepare teaching materials, and to make a test. The training guide and examples of the way how to make lesson plans, to prepare teaching materials, and to write a test are included in the AA “4C” model.

The research data were taken by the use of: (a) observation sheets equipped with an interview guide and (b) assessments sheets. The observation sheet was validated through expert-judgment and estimated using the Aiken Formula (Aiken, 1985). The results showed that, out of 24 items, four were deleted since their V value was lower than 0.88. So, the observation sheet ended up with 20 items. The observation sheet reliability was measured using the inter-rater reliability technique and estimated using the interclass coefficient correlation. It showed $r_{ii} = 0.79$ meaning the observation sheet was reliable (Feldt & Brennant, 1989).

The assessments sheet consisted of 20 items concerning teacher’s abilities in implementing authentic assessment. The assessments sheet was subjected to 96 Junior High School students where the subject teacher taught. Using the exploratory factor analysis technique (EFA), items that had a factor loading lower than 0.3 were discarded (Hair, et.al., 2014). The EFA results showed that the assessments sheets consisted of four components of teacher’s ability conducting authentic assessment, assessing: (1) knowledge competence, (2) skill competence, (3) attitudinal competence, (4) the consistency in implementing the AA “4C” model. The EFA results also showed that each component had five items and its reliability was $\alpha = 0.73$ meaning that the assessment sheet was reliable (Feldt & Brennant, 1989).

The observation sheet and assessments sheet each consisted of 20 items. Both the observation and assessments sheets each had four options producing a “very low” criterion for a score of 1.00–1.33, “low” for 1.67–2.33, “high” for 2.67–3.33, and “very high” for 3.67–4.00. The observation sheet was answered by three observers, and an assessments sheet was to be completed by the 31 students. Data of the
results of observations equipped by the interviews were subjected to a qualitative analysis technique to describe the development of each item of teacher’s ability from the preliminary condition ($A_1$), second condition ($A_2$), to third condition ($A_3$). Meanwhile, data of the results of students’ assessment were analysed by using the Manova technique, univariate Anova, and pair-$t$.

**Results of Research**

At the beginning of the study, the teacher conducted a preparation stage that was followed by a teaching stage. This was observed by three observers and assessed by 31 students. Results of this activity were called Condition 1, or the preliminary situation, and the results of the students’ assessment became the pre-condition of the study. Results of the on-going observation of the teacher’s abilities in doing authentic assessment can be seen in Figure 1.

![Figure 1](image.png)

**Figure 1.** Teacher’s development in doing authentic assessment by competency items

Figure 1 shows that each item of the teacher’s abilities in doing authentic assessment improves from Condition 1, Condition 2, to Condition 3. None of the ability item stays in the same state. Using the foregoing criteria, 16 ability items still have a low score and four have a high score. Based on the results of Observation 1
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(Preliminary condition), the teacher was intervened by Intervention 1, specifically on ability items with low scores. Following Intervention 1, the teacher carried out Teaching 2, the observers Observation 2, and the students Assessment 2. Results of Observation 2 show that the teacher’s ability items with a high score elevated drastically from 4 to 16, leaving four items of abilities with low scores, these are: Item 3 (Teacher’s technique in answering students’ questions), Item 4 (Teacher doing skill assessment during instructional interaction), Item 11 (Cognitive level teacher delivers to students), and Item 16 (Teacher prepares notes for doing assessment).

Results of observation 2 were used as an input for Intervention 2. The teacher conducted Teaching 3, the observers Observation 3, and the students Assessment 3, called the post condition. Results of Observation 3 show that the number of ability items with high scores increased to 18 and only two ability items had low scores: Item 3 (Teacher’s technique in answering students’ questions) and Item 11 (Cognitive level teacher delivers to students). Figure 1 also reveals that Item 3, “Teacher’s technique in answering students’ questions”, had the lowest score in the initial situation. After Intervention 1, i.e. ‘teacher given training in answering students’, improvement of the ‘teacher’s ability in answering students’ was not significant. Even up to the third condition, this item stays low. The other item that stays low up to the third condition is Item 11, “a cognitive level of the questions asked to students”.

Data from the students’ assessment are analysed using the Manova technique followed by an Anova and $t$-test. Results the Manova procedure give a Wilks’ Lamda value of $F = 23.030$ with $p = 0.00$. This indicates that, according to students, there is a significant difference in the teacher’s abilities in assessing attitudes, skills, knowledge, and the consistency in implementing the AA “4C” model, in the periods before and after using the model. The teacher’s abilities in these four aspects are higher in the post condition than they are in the pre-condition.

**Discussion**

Observation results from the three observers in the study indicate that out of 20 items in the natural science teacher’s abilities in doing authentic assessment, 16 items have a low score. Of the 16 items, six have a “very low” category: Items 3, 4, 11, 13, 16, and 19. Item 3 is related to techniques used by the teacher to respond to students’ questions. It is observed that the teacher seldom answers students’ questions well; his answers are inappropriate such as: “How on earth did you ask this question?” “That belongs to Year 1 material. Why did you ask this question?”
etc. It seems that the teacher forgets that attitude skills, that are written in the lesson plan and taught and modelled by the teacher in the class, have an impact on students’ attitudes. Kartowagiran & Maddini (2015) have the same conclusion in their study.

Another item with a very low score is Item 4: “Teacher does not assess attitude during the classroom process”. This is in line with Kartowagiran & Jaedun (2016) who found that many teachers do not carry out attitude assessment for the following reasons: (1) not enough time; should attitude assessment be done after every lesson; (2) too many students in a class and in the whole school, and (3) the teachers themselves do not know well how to plan and conduct attitude assessment.

Ability Item 11 deals with the level of the teacher’s cognitive questions. In the early situation, the teacher’s test items are of the multiple-choice type and represent mostly the knowledge level (C1), and the comprehension level (C2). Meanwhile, for the junior high school, teachers need to set up their assessment of application (C3), analysis (C4), evaluation (C5), and even creation (C6). Questions of the higher-order thinking will help students be able to think critically. The study by Abrami, et al. (2008) demonstrates that giving students the opportunity to have a dialogue helps students to face problems, gives students examples of critical thinking, and offers students some sort of guidance that will have a positive impact on their skills in critical thinking.

Ability Item Number 13 is related to the teacher’s abilities in choosing test types for the daily quiz. In this case, teachers only use the multiple-choice test items and hardly ever use essay types or mixtures of test types or testlets. This is understandable as, according to Edward (Hamdi & Kartowagiran 2018), the testlet aims to combine the strengths of the essay and multiple-choice tests, and they complement the weaknesses of these tests. Item 16 is the fifth that has a very low score, i.e. preparing notes for assessment. In the initial situation, the teacher only used random pieces of paper to take notes in doing the assessment. However, the teacher should make use of a specific book or notebook as it is described in the principles of authentic assessment. Natalia, et al. (2018) found that her English-teacher subjects used rubrics or journals for doing attitude assessment.

The last item that has a very low score is Item 19 concerning consistency of the teacher in implementing authentic assessment of the AA “4C” model. The main principle for the teacher is to focus on four students at each time. However, this is not conducted appropriately. Actually, if the teacher is consistent in taking four students at a time, the teacher will be able to obtain quite accurate assessment of the students at the end of the semester. Accuracy of assessment can be achieved
because of an appropriate ratio between students and the teacher in the class. For this, many schools apply team-teaching techniques to maintain small ratios. Good team teaching will be able to improve the students’ achievement. It is in line with Ronfeldt, M., et al.'s (2015) research. This research involved 9,000 teachers from 336 schools in the Miami-Dade County in two years, and it found that there is a significant positive correlation between the quality of team teaching and the achievement of students.

Besides increasing the accuracy of observation, a focus on only four students at a time makes it easy for the teacher to handle the class. This can be learned from the interview with the teacher who said that, “after applying the AA ‘4C’ assessment model, I no longer feel frustrated in conducting authentic assessment, including assessing students’ attitudes since I only have to deal with four items of attitude and four students at each session.”

Findings of the study also reveal that two ability items do not show any significant improvement even up to the third condition. Up to the end of the study, these two items stay in the “medium” category. These are Item 3 (techniques used to answer students’ questions) and Item 11 (the cognitive level of teacher’s questions). Item 3 is unique. The student’s question is concerned with knowledge, and the teacher’s response is related to knowledge. However, the teacher’s answer is related to attitudinal matters. For example, the teacher responded, “That’s of last week’s class, isn’t it?” with a slight tone of blaming the student. This is an attitude that is not too easy to change. Attitudinal abilities are almost identical to personal characters that include the dimensions of moral reasoning, moral feeling, and moral action. It is understood that it often takes long to change from moral reasoning to moral action (Lickona, 2009).

Another element that does not increase during the study is Item 11, concerning the level of the teacher’s cognitive questions. Before the research intervention, the teacher’s questions range around $C_1$ and $C_2$. After receiving the training, the teacher improves to $C_2$ and sometimes $C_3$. However, this is still low, and the teacher’s abilities in producing higher-order thinking (HOT) questions are still low, too. This is identical with Apino & Retnawati (2017) who found that teachers’ understanding of HOT items is low in that case.

Findings that are derived from students’ assessment are consistent with those derived from observers’ results. According to the students, there is an improvement in the teacher’s abilities in assessing attitudes, skills, and knowledge and in the consistency of using the AA “4C” model from the pre- to the post- conditions stage. The fact that the teacher’s abilities improve from the first condition to the third condition can be seen as a natural phenomenon. This is because the prac-
Effectiveness of the AA “4C” Authentic Assessment Model

Practices are done and monitored repeatedly and continuously during the classroom interaction.

The discussion above underlines that, after using the AA “4C” assessment model, the teacher’s abilities in implementing authentic assessment are of the high category. The use of good authentic assessment in learning is bound to produce good learning effects. This agrees with Hargreaves, Earl, & Schmidt (2002) who stated that the use of authentic assessment tends to motivate students to be more responsible towards their own learning, make assessment part of the integral process of interaction, and support students to be more creative in applying their knowledge.

Results of the continuous observation by the three observers show that the teacher’s abilities in implementing authentic assessment improve from Condition 1, to Condition 2, and Condition 3. Neither of the items stays the same throughout Condition 1 to Condition 3. In the initial stage, out of 20 items, sixteen have a low score and only four have a high score. During the second condition, teacher’s ability items drastically increase from 4 to 16. For the third condition, high teacher’s abilities increase to 18 and only two items remain low. This means that there is an increase in the teacher’s abilities in implementing authentic assessment. Results of this observation stay in agreement with the results of the students’ assessment. There is a difference in the teacher’s abilities in doing authentic assessment before and after using the AA “4C” model. Teacher’s competencies in doing authentic assessment after using the model are higher than before using the model.

Conclusion and Research Implication

First, the AA “4C” assessment model is effective in improving the teacher’s abilities in doing authentic assessment; however, the teacher is not fully able to develop test items that have higher-order thinking skills and to select the techniques for responding to students’ questions. Second, the AA “4C” assessment model is efficient and effective. It is efficient in that, in each learning session, the teacher is to assess only four students on four character items. It is also effective in the use of the AA “4C” model that can improve teacher’s abilities of doing authentic assessment.

In order to improve teachers’ abilities in doing authentic assessment, they need to be given training in using the AA “4C” model within an adequate time allocation. The model has a comprehensive coverage of assessment and needs to focus only on four students and four items of attitude in each learning session.
Recommendations
First, it is necessary to provide training in the implementation of the AA “4C” model that has been found to be an efficient and affective model. Second, development of authentic assessment packages need to be realized for other school subject matters.

Reference
Effectiveness of the AA "4C" Authentic Assessment Model

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Abstract
The aim of the present research was to assess the degree of preparation, methods of use, and the ability to create online educational resources by Polish teachers of early school education. The article presents the results of pilot studies carried out under the NP.2550 grant, as well as the results of proper research conducted in 2017 in a group of 340 teachers. The selection of the research group was random. The collected data showed current trends, and made it possible to address the issue of a virtual consumer and an online creator from the perspective of a teacher.

Keywords: early school education, virtual consumer, Internet creator, Information Technology, virtual space

Introduction
Erich Fromm in the 1850s, defining the notion of creativity, pointed out that the expression can be described in two ways. Firstly, referring to the production of something new, and, secondly, referring to attitudes that can last even when nothing new is created (Fromm, 1959). According to the Polish Language Dictionary PWN, creativity is associated with the emergence of new things, especially works of art. These are “all works created by someone, usually by an artist” (Polish Language Dictionary PWN).
In the belief of the author of the work, the above understanding seems to be too conservative and non-progressive. Already in the 1970s, the Polish philosopher and aesthete Władysław Tatarkiewicz emphasized that the word creator refers to all human culture (Tatarkiewicz 1980). As a result, the circle of artists has expanded to include not only poets and artists, but also scientists, inventors, technicians, and teachers. According to Tatarkiewicz’s remark, in the recognition of products and creative activities it is helpful to observe such features as novelty (only its high degree is intuitively associated with the definition of creativity) and mental energy. In the context of the latter, it is emphasized that the mental energy devoted to the creation of a new thing is no less important than the novelty itself (ibid.). Meanwhile, Elizabeth B. Hurlock explains in one of her books that creativity is the ability to compose products or ideas that are innovative and have not been known to the person making them. Creativity can, therefore, include new models or focus on combining information from previous experiences (e.g. enriched with specific variables). As a result of creative activities, products of a procedural, methodological, artistic, literary, or scientific nature may be created. A condition that should be met in order to be able to talk about the process of creation is purposefulness or orientation on a goal. Creativity is not synonymous with sterile fantasizing (Hurlock 2017).

A related definition can be found in the works of Elisa A. Brunelle, who defines creativity as a process that enables the creation of innovative ideas or objects (Brunelle 1970).

Depending on the definition adopted, creativity can be considered in an elite or egalitarian approach (Sekowski, Siekanska, Klinkosz 2009). The first approach assigns creativity to a limited group of people capable of creating innovative and valuable works. The second gives a chance to all individuals, indicating that every person is creative, and the only thing that distinguishes us is the level of creativity. As a consequence, the author of the article, analysing the teacher as a creator of virtual space resources, adopts the liberal definition proposed by Hurlock.

**The teacher – a creator of virtual space? (Problem of the Research)**

The results of the research carried out by Richard Florida show that the inhabitants of San Francisco Bay are characterised by the highest level of creativity in the world. The overall analysis carried out in the context of the country and not only region changed the ranking slightly, placing Sweden, Japan and Finland on the podium. In the cited classification, Poland took 34th place (out of 45 surveyed
countries) (Florida, 2012). Florida emphasizes that the creativity represented by teachers assigns them to the group of creators of new forms (Super Creative Core). The author assigns to them activities that generate new forms that are recognized by a wider environment (Florida, ibid., pp. 83–84).

Edward Nęcka emphasizes that creativity is not part of a set of definitions with rigid frames and that it can occur on several levels. The first, lowest level – fluent creativity – includes the activities available to each individual. The second, in turn – crystallized creativity – is associated with having specific skills or procedural knowledge. According to the psychologist’s conviction, it can be attained by students of art universities, music academies, etc. The third level, namely mature creativity, is possible thanks to knowledge and experience. In this case, the most important role is played by the product which occurs thanks to painters, architects, musicians, etc. The outstanding works that set the highest level include works by Fryderyk Chopin, Pablo Picasso or Veit Stoss – known and valued all over the world (Groborz, Nęcka 2003; Nęcka 2003).

The analysis of Internet portals developed for education shows that teachers are present in the virtual space, where they create and share interesting educational resources. In order to find interesting lesson plans, quizzes, interactive educational games, or books that support the course of classes, it is enough to follow the pages: Smart Exchange, Learning Apps, Quizlet, Quizizz, Storybird, etc. abounding in the work of educators from around the world, including Poland.

In the network, more and more often one can find all kinds of videos that play the role of video guides, showing the subsequent steps related to the development of various types of educational materials. They are published on private blogs, social media portals, and websites of educational institutions.

Of course, the professional creativity of teachers cannot be compared with Chopin’s work, which does not mean that it does not exist at all. On the basis of Nęcka’s division, the creativity of most teachers can be qualified as the lowest level, defined as fluent. A broad analysis of the teachers’ environment also reveals a group of enthusiasts that is part of the level of crystallized creativity. This group is made up of art and music teachers who create together with students in the virtual space (using on-line and undemanding programmes), collages, graphics, animations, musical compositions, etc.

**Creative attitude of teachers**

The concept of creativity is ambiguous. Krzysztof J. Szmidt emphasizes that a creative teacher is above all someone who can recognize a talented and creative student. “Innovative and creative teachers lie at the heart of education for creativity
Numerous studies demonstrate that whether negative or positive teachers’ attitudes towards creativity may influence instruction by using (or not) problems or questions that encourage creative thinking, curiosity, intrinsic motivation, and creative action or behavior” (Grohman, Szmidt, 2013, 25).

In this context, a creative educator is a person who can open up to the questions of the student, take the attitude of the discoverer who will study with them, learn and subject to critical analysis the boundless resources of virtual space. In accordance with the above reasoning, creativity is associated with openness to the needs and questions of students; it even enforces breaking with a predetermined, rigid diagram of the lesson that differs from the direction of children’s interest. The creative teacher not only improves the skills acquired already, but also takes actions enabling further development.

Research carried out on the basis of cognitivism, psychology, and pedagogy shows that the creative attitude, like other key competences, can be developed and improved.

The activities of teachers related to the online environment include the activities undertaken within the framework of cooperation and self-education networks being formed. The task of this new form in school conditions is:

- promoting knowledge and skills and sharing them,
- joint performance of tasks e.g. on the forum or using various types of applications (work of a synchronous or asynchronous nature),
- group problem solving,
- establishing contacts and undertaking cooperation.

Virtual groups of educators, whose goal is to popularize creative activities, are also very optimistic. As part of the teachers’ meetings, they discuss the principles of using the software, as well as share ideas for using tools during the lesson.

**Research methodology**

**Research General Background**

The aim of the presented research was to assess the degree of preparation, methods of use, and the ability to create online educational resources by Polish teachers of early school education. The verified hypotheses were supported by data collected as part of the following research questions:

- whether early childhood education teachers use online resources (in order to prepare for lessons) at home, and if so, which,
- whether early school education teachers have fears connected with the use of the Internet, and if so what fears,
• whether there is a connection between the frequency of Internet use and the concerns related to the use of IT,
• whether and how internet resources are included in the course of lessons in grades 1–3,
• whether early childhood education teachers publish educational resources on the web,
• whether early childhood education teachers are members of a cooperation network related to education,
• with which of the groups - virtual consumers or online creators do early school education teachers identify themselves.

**Research Sample**

The research presented in the text was carried out in 2017 on a group of 340 early education teachers from the Kujawsko-Pomorskie Voivodeship. Pilot studies were carried out in the same voivodship, as part of the NP-2550 grant (in 2016), on a group of 148 teachers. The research included teachers from ten schools in Toruń, nine schools in Bydgoszcz, three schools in Grudziądz, Włocławek, three schools in Inowrocław, two schools in Brodnica, one school in Kruszyn, Przysiek, Łysomice, Dobrzejewice and one in Ryńsk. The selection of the research group was random.

**Research question and hypotheses**

The main goal of the project was to examine teachers’ preferences regarding online activity as well as the creation and use of online resources. As a result, the following research goals were distinguished: Do early education teachers take advantage of Internet resources and, if so, of which resources?

The following hypotheses were put forward in the work:

1. Teachers of primary school grades 1 to 3 use network resources at home and during classes to the same extent.

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1 Early childhood education in Poland includes children from 7 to 9 years of age, grades 1–3 of primary school.
2 The results of the pilot studies were highlighted in the text using the symbol*.
(2) Teachers of higher grades use network resources during classes more often than teachers of lower grades.
(3) There is no relationship between the private and professional activity of teachers in social media.

Instruments

The inference was mainly based on quantitative data supplemented with a qualitative analysis. The actions taken were based on the diagnostic survey method (questionnaire, partially directed interview, and observation). The survey consisted of ten questions, including four open questions and six closed questions. The interview included six questions and the observation sheet had nine items.

During the research analysis, the determination of such statistics as mean, median, chi square, independence test, and Spearman's rho correlation was used. The strength of the relationship was verified using the V-Cramer or φ-Yule coefficient.

Research Findings

The statistical analyses carried out led to the falsification of the first hypothesis. Three groups were distinguished in the course of the research: teachers who do not use the Internet (2.35%), those using the network only at home (8.53%), and those using the network at home and at school (89.12%). There were no teachers using the Internet at school only. The group of teachers who use the Internet spends in virtual space, at home, on average more than twice as much time as they do at school. The average time spent online at school is about 30 minutes, of which part of the time is devoted to the filling in of the electronic class register. The average time spent online at home is 60 to 90 minutes a day.

It is also worth mentioning that at school, teachers log on to the Internet three times on average (average 2.81), and at home - twice (average 1.86). This means that the form of using the Internet in the classroom does not have an in-depth character. Teachers log on to the network for an average of 10 minutes, mainly to present specific resources, not to search for and analyse what is taking place at home. There is also a significant difference in the number of people who do not use the Internet at home and at school. The research shows that on average, 93.38% (94.93%*) of teachers who have access to efficient Internet use its
resources, of which 97.65% (99.32%*) use them at home and 89.12% (90.54%*) in the classroom.

Why do teachers use the Internet less frequently in the school space? It can be concluded from the Chi square test and the determined V-Cramer coefficient, that there is a strong relationship between the degree of network usage in the classroom and the number of concerns related to the use of information technology (α=0.05, p=0, V=1). Spearman’s rho correlation results show that, as the number of problems related to the use of information technology increases, so the use of the Internet during the lesson decreases.

In accordance with comments, lack of self-confidence as well as awareness of low competences associated with the use of computer tools cause discouragement, and fear of the negative opinion of students. As a consequence, the teachers in question declared that they turn to network resources mainly at home, where without time pressure they can browse individual pages and save films, tasks or other materials necessary for classes.

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**Table 1. Descriptive statistics – the use of the Internet at home and at school space***

<table>
<thead>
<tr>
<th>The use of the Internet statistics</th>
<th>at school space</th>
<th>at home space</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>Mean</td>
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<td>95% confidence interval for mean</td>
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<tr>
<td>Upper limit</td>
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<td>5% Trimmed mean</td>
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<tr>
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<tr>
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<tr>
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</tr>
<tr>
<td>Kurtosis</td>
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<td>.279</td>
</tr>
</tbody>
</table>

* Time spent on the web – labels given in the SPSS programme: 0 – people who do not use the Internet, 1 – people who use the Internet from 0 to 30 minutes a day, 2 – from 30 to 60 minutes a day, 3 – from 60 to 90 minutes a day, 4 – from 90 to 120 minutes a day , 5 – more than 120 minutes a day.
Source: Own study.
The surveys and interviews carried out show that teachers, when using virtual space, are afraid:
- that they will not find valuable and needed resources 54.7% (55.4%*),
- of the need to install drivers, update programs, etc. 60.29% (58.78%*),
- of finding websites in the Internet with pornographic content 58.53% (54.73%*),
- of improper 18.82% (16.22%*) or slow network activity 9.41% (7.43%*),
- of excessively open material, not covering the lesson plan 19.12% (21.62%*).

Currently, in grades 1–3 at the level of primary school, next to CD and DVD players, as well as tape recorders, computers, interactive whiteboard, projectors, and multibooks (less frequently e-books) are most commonly used. As a consequence, the resources searched for at home are to help in planning and teaching classes supported by these technologies. They usually are of the nature of: text files (e.g. lesson scenarios, colouring books, drills, rhymes, song lyrics, templates for art classes, etc.), multimedia (e.g. films, animations, photos, presentations, etc.), interactive (e.g. exercises, games, quizzes, etc.). It can, therefore, be concluded that working with the Internet at home is more analytical than in the classroom, where the use of the network is mainly to restore the previously found resources.

The second hypothesis, namely: Teachers of higher grades use network resources during classes more often than teachers of lower grades was also falsified in the course of research. The significance of Spearman’s rho correlation in the two examined cases was less than the critical value, which means that the analysed relations are statistically significant (0.000 < p=0.05). The age of the students correlates with the number of logins and the time spent online during lessons (moderate correlation). It was noted that as the age of students increases, the number of logins on the Internet decreases (rho = -0.302), with simultaneous increase in usage time (rho = 0.353) during the lesson. The results of the analyses find their justification in the activities arranged during classes. And so, in the first grades, teachers mainly use the Internet to present films, animations, or photos. The above actions are taken several times and usually last several minutes. In the second grade, teachers start to reach for games, while in the third grade they start more difficult, interactive exercises and quizzes. Teachers of higher grades use network resources during classes more often than teachers of lower grades. The Internet is used less frequently in higher grades, but for a slightly longer period of time.

Teachers find these materials on educational portals, websites containing video guides or additional elements that complement paper-based textbooks (developed
by educational publishers). Interesting resources are saved or printed. Most 79.41% (76.35%*) prefer to teach classes based on ready-made materials, thus giving up the search for videos, games, or educational portals directly during the class. The above attitude does not mean that teachers are not interested in incorporating elements of information technology into the course of classes. On average, 83.24% (85.81%*) of teachers (in their spare time) verify the Internet using a smartphone, and almost half of them 50.29% (48.64%*) use tablets at home.

Social media have also played an increasingly important role in the teaching process for several years. Thanks to them, teachers share ideas, educational successes, observations, resources, news about free training courses or interesting conferences. Sometimes they look for advice or inspiration.

During the research, the third hypothesis was also falsified. The Chi square test and the set Yule ϕ-factor showed that there is a relationship between the private and professional activity of teachers in social media (α=0.05, p=0, ϕ=0.28). The analysis of the collected data showed that only teachers who are also privately active in social media are professionally active in social media.

The research shows that, on average, seven out of ten teachers 71.76% (70.95%*) have an account on a social networking site. About 15.88% (14.19%*) teachers belong to social groups related to early school education. They usually publish ideas for: interesting artwork, classes based on audio or video recordings, lessons with the use of computer teaching tools, and the application of exercises and presentations in the course of computer classes. Sometimes social groups cooperate with academic teachers or trainers, as a result of which they have the opportunity to participate in free, cyclical, virtual training meetings. The mentioned virtual support groups facilitate the expansion of knowledge and skills.

Research conducted by Kamila Majewska in 2014 showed that in Poland early childhood education teachers use information technology tools usually in an incorrect way. Why? Lessons taught with the use of computer tools do not differ significantly from traditional classes. The main and usually only difference is the replacing of the dry-erase board with its interactive counterpart (Siemieniecka, Kwiatkowska, Majewska, Skibińska, 2018). Although several years have passed and teachers have become familiar with the new media, the method of work used in the classroom has not changed significantly. The differences noted are related to the popularization of multi-books and, as a consequence, faster and easier access to the database of interactive exercises and tasks. Working with multimedia is also facilitated by Internet resources posted online by educational companies or by other teachers - enthusiasts of using information technology in education. The observations carried out as part of the research showed that teachers’ activities
coincide with the first level of the SAMR model developed by Ruben Puentedura (Puentedura 2014). During the lesson, teachers reach mainly for familiar, previously analysed websites. The elements used usually take the form of: educational games, films (mainly Youtube), presentations, and photos.

The classes taught by teachers usually take on a traditional character, which separates them from the following models: reversed class, rotational, connectivistic, gamification, and others. The above state of affairs is explained by: lack of time 74.71% (76.35%*), lack of confidence in new forms of teaching and learning 82.65% (85.14%*), and ignorance 43.53% (41.89%*).

Lessons supported by IT tools have a mixed character. Some of the topics are taught by using the inquiry method, which is accompanied by brainstorming, discussions, problem analysis, problem solving, etc. In the course of classes, however, there are moments when the teacher plays a dominant role, and the students are moved to the background. According to teachers’ declarations, 60.88% (63.51%*) of them use the potential of computers, including Internet resources, on average several times a week. Every third teacher covered by the research (33.78%*) declares that he or she includes interactive forms of activity almost every day in the course of lessons. Of course, during the activities the group who did not use computer tools or access to network resources during the lesson, constituted a minority – 2.65% (3.38%*).

The results of the questionnaire showed that only 4.71% (3.38%*) of early school education teachers publish educational resources in the network. The vast majority of materials are posted on social media or educational websites. As a consequence, one in 20 teachers declares his/her affiliation to a group of virtual creators. The others are Internet consumers. The following are mentioned as the decisive factors for this attitude:

- lack of academic preparation in the above field,
- lack of access to free courses and other forms of further education in the above field which do not collide with their professional work,
- lack of knowledge related to the process of creating virtual resources,
- lack of ability to navigate the web correctly and publish educational materials,
- lack of belief in the rightness of and benefits resulting from taking such activities,
- negative attitude and fear of using modern tools of information technology.
Discussion and Conclusions

Information technology tools support the implementation of activities in line with the cognitive-constructive and connective trends. Their correct inclusion in the course of the lesson facilitates the integration of diverse educational resources, opinions as well as sources of information, which favours the creation of a specific knowledge tree. Internet connection guarantees free access to rich materials and, as a consequence, facilitates conducting classes that are compatible with the needs of children. Early contact with virtual space has one more important advantage, namely it teaches conscious movement in the jungle of information, data selection, and evaluation. Computer tools facilitate gradual shifting of the accent from passive and reproductive (determined entirely by the teacher) activities towards the student’s independent work because the ability to learn, as George Simens emphasizes, is more important than what is currently known (Simens 2005). The Internet, being a window to the world, enables not only consumption, but also creation of knowledge. In addition, the acceptance of information and communication technology tools by younger generations favours combining cognitive processes with emotions, which strongly strengthens the course of learning.

The research carried out showed that the majority of teachers (95.29%) only play the role of a consumer in the network. These people use ready-made text and multimedia materials that they download them from the Internet, usually before starting the class. Sometimes, the lesson includes interactive exercises, games, or presentations. However, it should be emphasized that during the lesson, teachers are reluctant to search for resources on the web. Usually, this is dictated by the lack of time or fear of finding unwanted content.

Only a few years ago, the research indicated that Polish teachers use new media, including the Internet, usually in an incorrect way, fully in line with traditional didactics (Majewska, 2014). Therefore, it cannot be expected that teachers will start using the new technologies, including the Internet, regularly and in a faultless manner within such a short time. Everything takes time, the right approach, and motivation. Krzysztof J. Schmidt, contemporary representative of creativity pedagogy, emphasizes that creativity is not a gift from God and that one can learn it. Therefore, a very important challenge is faced by the school and academia, namely conducting a series of studies aimed at verifying new, interactive educational models, dedicated to modern teaching and adapting them to the realities of the Polish school. Activities involving teachers’ in-service training and those raising their awareness regarding the benefits and negative effects resulting from improper
inclusion of computer tools as well as the Internet in the educational process are also of great importance.

Thanks to the 5% group selected in the course of the study, which has adopted creative attitudes in the network, one can hope that with the passage of time, the number of teachers being online creators will increase. Certainly, this task can be included in long-term activities that require dedication on the part of both the training staff and the teachers themselves. At this point, it should be strongly emphasized that according to scientific literature, subject competences are only the beginning of a long educational path, and are inseparably connected with further education (Day, 1999, Day, 2004). From the practical point of view this task is not easy to implement. As a result, it is worth considering the current assumptions, content, and forms of education, and adapting them to the current as well as anticipated changes and needs of the society.

References


Special Pedagogy
Swedish Special Needs Teachers’ Views on Their Work and Collaborations in Education for Students with Intellectual Disabilities

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Abstract
The aim is to analyze what characterizes the work of special needs teachers and what collaborations they engage in in schools for students with intellectual disability. Special needs teachers with degrees from three different universities in southern Sweden participated in the survey. The results show that a majority of the respondents had long experience before they started the special needs training program and they describe the direct encounters with students in the classroom as an important part of their work. Supervision and subject-development also exist, but not to the same extent as classroom teaching.

Key words: collaboration, intellectual disability, special needs teacher, school assignment

Introduction
This research started as an interest in gathering information about what conditions and assignments special needs teachers (SNT) in compulsory schools for students with intellectual disability (CSSID) and upper secondary school for students with intellectual disability (USSID) have after postgraduate education. The research intends to contribute with knowledge and understanding of the main tasks SNTs use after acquiring their education.
The Research Problem

Sweden has a parallel school form for students with intellectual disability (ID) who are not expected to achieve the knowledge requirements set by the curricula for the compulsory school or upper secondary school. This school form, CSSID and USSID is adapted for students with ID, which teaches more or less the same subjects as in general education, but with its own curriculum. Sweden has a 150-year-old tradition of providing a parallel school form for students with ID as an independent special education program parallel to general education. After ten years in CSSID, the students can pursue further education by choosing a four-year education program in the USSID, which prepares the students for adult life, to be independent and get employment. Changes made in the curriculum (National Agency of Education, 2011) set new demands for the professional development of SNT’s with a stronger focus on increasing the academic performance of students with ID.

Research Focus

The new requirements have led to an increased focus on assessing student skills. This trend is also evident in international research, where several researchers (Kearns, Towles-Reeves, Kleinert & Kleinert, 2009; Causton-Theoharis, Theoharis, Orsati, & Cosier, 2011) note that there is an increased focus on academic skills in ID education. Collins, Karl, Riggs, Galloway and Hager (2010) point out the challenges in embedding core content into functional activities when teaching students with moderate to severe ID. This is a dilemma that Anderson and Östlund (2017) also spot, a dilemma that became the starting point for a two year project on professional development for SNTs and paraprofessionals. Andersson and Östlund (2017) point to the need for more research on how SNTs and paraprofessionals can develop joint work, their professionalism in teaching and formative assessment. Two meta-analyses by Shurr and Bouck (2013) and Moljord (2018) show that there is a lack of research on SNTs professional work in relation to students with ID. With this background, the overall aim of this paper is to gain new knowledge and a better understanding of SNT’s, their beliefs about their professional role and their collaboration with other professions.

The aim of this research is to analyze the characteristics of SNT’s assignments in CSSID and USSID and the collaborations they engage in. The following research questions are formulated:

1. What competences and kind of employment do SNTs describe that they have had before and after receiving a SNT degree?
2. What assignments do the SNTs perceive characterize their professional role?
3. Which professions do SNTs collaborate with in their work?
Methodology of Research

General Background to the Research
In order to highlight the SNTs work in CSSID and USSID and answer the research questions, data was collected through a digital questionnaire. The design of the research is based on a mixed method design (Creswell, 2014) using a questionnaire with both open and closed response options.

Research Sample
Criterion for the selection of respondents was an SNT degree from one of the three universities in southern Sweden, called A, B and C in this research. The universities are unidentified for reasons of confidentiality. The questionnaires were answered by 88 respondents and the response rate from University A was n = 48 (~ 80%), from University B n = 25 (~ 25%) and from University C n = 15 (~ 26%).

Instrument and Procedures
During the spring semester of 2017, the questionnaire was constructed and sent out by e-mail or by letter to all SNTs who graduated from the three universities. The explanation for this approach was that e-mail addresses were available at university A, but were missing at universities B and C. The letters to SNTs from university B and C contained a link to the digital questionnaire. The respondents got information about participation being voluntary as well as information regarding confidentiality. Initially the respondents got information about the aim and overall purpose of the study. The questionnaire took approximately 30 minutes to complete. General reminders of participation were sent out twice to SNT graduates from university A (via e-mail), which may explain the higher response rate (80%) from this university. No reminder to SNTs from University B and C was distributed. Totally 219 questionnaires were distributed and the number of respondents was 88 SNTs (response rate ~40%). The respondent loss and the difference in response rates between universities affect the reliability and conclusions of research. The questionnaire consisted of 24 questions, including both closed options (on 6-point or 7-point Likert scales) and open options with a field for comments. The instrument included questions concerning undergraduate education, the university where SNT education was completed, the year of graduation, whether a regular SNT program or SNT program for credentials was followed, school development, professional competence development, teaching development, collaboration with paraprofessionals and other professions, as well as with primary or secondary schools, and leadership in special schools. The proportion
of missing variables ranged between 1 and 5 percent, which can be attributed to the answers “do not know” on four questions. In addition, to some questions, open responses were an option.

**Data Analysis**

To get a robust analysis, response options 1, 2, and 3 (1 = very low; 1 = very problematic; 1 = very low extent) were combined to represent “low”/“problematic”/“low extent” ratings, while categories 4, 5, and 6 (6 = very high; 6 = unproblematic; 6 = very high extent) were combined to represent “high”/“unproblematic”/“high extent” ratings. Descriptive analysis was performed using the statistical software package IBM SPSS Statistics 24. The statistical significance level was set at \( p < 0.05 \). Deductive content analysis works in cases where the researcher wishes to retest existing data in a new context, in this case retest the quantitative data by mirroring them in the qualitative data. The qualitative data were analyzed using content analysis (Bryman, 2012). Some questions in the questionnaire concerned the assignments of SNT, involvement in subject- or school development, skills of other teachers, the SNTs’ need for competence development, students learning environments and collaboration with other professionals. Some of the questions were answered by open response options.

**Ethical considerations**

The respondents received information about participation being voluntary as well as information regarding confidentiality. They were given the option to drop out of the research at any point. Furthermore, the respondents were informed that the purpose of the research was to study the competence and assignments of SNTs and their collaboration with other professionals. All data was stored in accordance with ethical rules (Bryman, 2012).

**Results of Research**

The results of this research derive from both quantitative and qualitative data analyses. The presentation of the results switches between data analyzed with the SPSS Statistical Package and quotes that reinforce the quantitative results. Among the respondents, 20 (24%) reported that they had a degree from two different special education programs. A high proportion of respondents (87%) had worked in CSSID/USSID, without formal qualifications, prior to their degree as SNTs.
Education and employment before and after SNT graduation

Almost half of the respondents were educated primary school teachers (46%) before they started SNT training. Educated preschool teachers were the second largest group (28%). Other respondents were educated subject teachers, vocational teachers, or afternoon center teachers. According to National statistics, ~90% of teachers in CSSID and ~78% in USSID are women (Swedish National Agency for Education, 2018). The female dominance is also reflected in the special needs education program and generally within the CSSID (Swedish National Agency for Education, 2018). For reasons of confidentiality, the questionnaire did not include questions regarding the respondent’s gender or age.

The SNTs graduated between 2013 and 2017, and most of the respondents were trained at University A. Of the respondents, 77% are employed as SNTs after their graduation, while 25% either have employment in primary schools, or continue to work as special education teachers. The analysis shows that employment as an SNT is higher for those who have completed education according to eligibility requirement, although the difference is not significant (p=0.057). The results show that a larger proportion of respondents work as SNTs if they have been examined according to the credential in the program that was formed to meet the eligibility requirement, compared to the regular SNT education program, 51 respondents (76%) have stated this answer. A large proportion of the respondents (89%) were employed in the CSSID/USSID before they began SNT education, while 11% had different employment—for example, as an afternoon center teacher or paraprofessional. Most of the respondents have worked between 6–10 (26 respondents) years, 20 respondents have worked between 11–16 years and 16 respondents have worked more than 16 years in either CSSID or USSID. Preschool and primary school teachers are the group that have been employed for the longest time in either CSSID or USSID before they started SNT education (36.8% respectively 21.8% employed > 6 years). The majority (55 out of 88) currently work in CSSID, 34 respondents work in USSID or adult education; and a smaller proportion (16 respondents) work with students with ID in general education. The discrepancy in numbers is because some respondents stated that they work in several types of school.

Qualifications and competence

Respondents estimated teacher qualifications with regard to the new demands on having a SNT credential, with 62 respondents (72%) giving a high rating. The remaining 26 respondents considered that the number of teachers with a SNT credential are low (28%). The motivations for the latter included the following:
Few of my colleagues are qualified to teach in a special school.

Respondents estimated that their own skills needs were moderate. 47 (36%) considered this and argued as follows:

It would be good to have practice in education, especially to exchange experiences with educated special teachers.

Table 1 shows the school assignments that the respondents indicated they usually work with as SNT or special education teachers. The table does not show which assignments each individual SNT has, but it appears that they have several assignments. The respondents were given the opportunity to indicate the total amount and the percentage. The results showed that a SNT can work exclusively with classroom teaching (71 to 80.7%), but their work can also include supervision (30 to 34.1%), school development (33 to 37.3%), and student health work (25 to 28.4%). We can assume that school development links to a employment as special educator. Another answer could be, for example, a counselor in another authority, working as a SNT in a child and youth rehabilitation center and as a lecturer at a university. Respondents described in which areas they carry out school- or subject development (if any). The answers were categorized as follows: The subject- and school development undertaken is multifaceted and includes areas such as implementation of curricula; educational plans and assessment for learning; creating an accessible learning environment; health promotion; subject development in Swedish, sports, mathematics and organization and collaboration with the principal.

School development involved implementing curricula, creating clarity in education through educational plans and assessments, using ICT in learning, and establishing routines for systematic quality work and student health work.

<table>
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<tr>
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<th>N (%)</th>
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<tbody>
<tr>
<td>Classroom teaching</td>
<td>71/87 (80.7%)</td>
</tr>
<tr>
<td>Supervision</td>
<td>30/87 (34.1%)</td>
</tr>
<tr>
<td>School development</td>
<td>33/87 (37.5%)</td>
</tr>
<tr>
<td>Student health work</td>
<td>25/87 (28.4%)</td>
</tr>
<tr>
<td>Subject development</td>
<td>16/87 (18.2%)</td>
</tr>
</tbody>
</table>

**Table 1.** SNT’s school assignments (N=87)
Collaboration with professionals inside and outside CSSID/USSID

The respondents stated that paraprofessionals are important for daily work, but 70% of them also argue that paraprofessional training is low and indicate this with comments such as:

They often lack education, but I think their work should be considered very important. They need to get more education and be valued higher.

The education is low with the paraprofessionals I work with, but they have a solid experience and a strong career. We have a very good team around the student group.

Regardless of the level of paraprofessional education, the school form requires that SNTs and paraprofessionals collaborate, and there was no significant difference between paraprofessional education levels and to what extent SNT and paraprofessionals collaborated (p=0.274). Respondents, regardless of their employment, estimate the paraprofessionals’ education to be low, while their contribution to the education of the students was rated highly. More than 60% of the respondents indicate that there is a time for planning with the paraprofessionals, but that the scheduled time may vary from 2 hours a week to 20 minutes a week. Of the respondents, 74% appreciate the value of collaboration with paraprofessionals, while 8% have no opinion, which may be because they work in a school where paraprofessionals are not available. One respondent wrote:

Collaboration with paraprofessionals is one of the most important factors in special schools for students with intellectual disability; they follow the class during all hours. It is important that we are two occupational categories that will work together around the students. We collaborate, but we never have time to talk; therefore, it will be difficult to get proper collaboration.

There is no significant difference between paraprofessional education and SNT’s appreciation in their creating learning environments for the children (p = 0.048). Creating learning environments is assessed by the SNTs both as unproblematic and
as problematic when the level of education is low in paraprofessionals, but considered somewhat less problematic when their educational level is high. There is no significant difference between the level of paraprofessionals’ education and the leadership of the CSSID and USSID is shared with a regular school, or if the principal only is responsible for a school or students with ID (p=0.310). 58 of the 88 respondents (67%) indicate that they interact with other professionals outside the school. In particular, they collaborate with different professional categories within child and youth rehabilitation centers and with the resource team, as well as with municipal representatives and agencies (such as employment agencies and insurance funds).

**Discussion**

From a professional development perspective, professional development as a SNT tends to stagnate instead of the teacher continuing to develop in skills and competence. In this context, it becomes very important for the graduate SNTs to create both local and regional professional networks for professional development outside their own workplace.

**SNTs experiences before and after obtaining an SNT degree**

Based on the results of the study, SNTs appear as a group whose profession is characterized by a discrepancy between what they are educated for in the university and what they do in education for students with ID. They work primarily in teaching and, to a lesser extent, in supervision or school development, which are two important components in SNT education. In practice, their role focuses strongly on classroom teaching, which is contrary to the multidimensional terms used in the policy document for education that states that SNTs are supposed to work in supervision, school development, subject development, leadership, and student-health issues to varying degrees. SNT’s state that they are not given the space to design their professional roles so that they can utilize their full skills, for example by working in supervision and school development after finishing the SNT education. Thus, a discussion on the boundaries of the work of the SNT is needed, since along with supporting paraprofessionals the SNTs need to spend more time on working in supervision and school development.

**SNT’s school assignments and professional role**

With regard to the gap between governmental policy and practice in implementation of regulations for SNTs to have a formal teacher credential, we see
that there is a shortage of SNTs with credentials, which creates the scope for SNTs to design the pedagogical work themselves. At the same time, they are forced to adapt to their colleagues’ expectations, in a situation where these colleagues are not accredited to teach. In terms of competence, the study points to the fact that respondents’ colleagues are usually not qualified SNTs and that the principals of schools where they work may lack experience in working with students with ID.

### Collaboration with other professionals

Collaboration between paraprofessionals and SNTs is dependent on good communication, but sometimes their different forms of employment becomes a barrier. The paraprofessionals often follow the students to the schools afternoon center, which is a barrier to finding joint time for meetings. The respondents highlight the importance of their collaboration with the paraprofessionals and pin point the importance of co-planning to make teaching work. Therefore, it is remarkable that around 40% of the respondents indicate that they lack sufficient planning time with paraprofessionals. It is also notable that even though 60% have a scheduled time for co-planning with the paraprofessionals, they could have as little as 20 minutes a week and no more than 2 hours a week. The total lack of time to co-plan among 40% of the respondents and the large variation in co-planning time for the other 60% is a potential risk to the professional development of both the SNTs and the paraprofessionals. Everyday interaction with other professionals, for example, paraprofessionals, occurs without having the time to co-plan strategies for co-teaching and co-assessing. This constitutes a threat to the SNTs’ professional development and to the quality of education for students with ID.

### Limitations

The low response rate in total (~40 %), and the difference in response rates between universities affect the generalizability of the results. With larger samples, the analyses could be made at a finer level that includes all response categories and includes other universities educating SNTs for a more comprehensive understanding of the correlation between competence, assignments, and collaboration.
**Conclusions**

The SNT role has a strong focus on teaching. However, the SNTs are also educated to work in supervision, school development, subject development, leadership, and student-health issues to varying degrees. Continued qualitative research about and with SNTs and principals can deepen the understanding of collaboration and educational practices for students with ID. A future research question could be about the education that a university offers SNT students in relation to the gap between policy and practice. For example, the SNT has many qualified collaborations with parents, colleagues, paraprofessional and other professions. What skills do SNTs develop during their education? This area could be deepened by comparing syllabi and by interviews with university teachers and SNTs. Another conclusion that can be drawn, is that the SNTs have many areas of collaboration. Teaching students with ID assumes that teachers have many different skills, but requires most of them to continue as class teachers after obtaining a SNT degree. Even though it is common for SNTs to collaborate with other professionals such as staff in the child and youth rehabilitation center, or Social Insurance and Employment Services these perspectives are not explicit in the SNT’s education. An implication of the results of this research into SNT education is to highlight content that in a better way prepares the SNT’s for collaboration with external actors.

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1 In the text, we use the abbreviation CSSID and USSID, regardless of whether they study subjects or training fields. Training fields is related to students with moderate to severe intellectual disability. Subjects in CSSID include, for example, Swedish language, Math, Image, Sport, natural science subjects, social science subjects; training fields include Communication, Aesthetic activities, Perception of reality, Everyday activities and Motor skills.

ii This is an initiative from the Swedish National Agency for Education and aims to increase the qualifications of teachers in CSSID and USSID by initiating a program with increased study rate. The Swedish National Agency for Education contributes to the funding.

iii In Sweden, there are two similar professions working with special educational needs. Special educators working with school development, SEN investigations and supervision, whereas the main mission for special needs teachers is to support individual students, and subject development, but also SEN investigations and supervision.
European academics have been changing continually for the last decade. Higher education reforms around the world have led to changes in academic work and life. The newest publication written by Marek Kwiek presented in this review gives the reader a complex insight into the current condition of the academic profession. Based on extensive international research, the author presents a comprehensive study of eleven countries in Europe. Changing European Academics published by Routledge discusses the situation of increasing stratification across Europe in a very thoughtful way.

Marek Kwiek’s book focuses on a critical approach to higher education reforms and changes in terms of university governance and funding. He is among the most well-known scientists in higher educational policies and international comparative studies of the academic profession. He is a Professor at Adam Mickiewicz University, Poland as well as a Director of the Center for Public Policy Studies and also a UNESCO Chair expert in Institutional Research and Higher Education Policy. Marek Kwiek is known for the following publications: Knowledge Production in European Universities, National Higher Education Reforms in the European Context and The University and the State. This newest book is supported greatly by his long experience of research into higher education.

The aim of this publication is clearly presented in the wide-reaching introduction. This part specifically describes previous research and publications which can be treated as a base for the present book. With this in mind the author presents “a panoramic view of the academic profession — specifically, from the university
sector–across Europe in 11 national systems (Austria, Finland, Germany, Ireland, Italy, the Netherlands, Norway, Poland, Portugal, Switzerland, and the United Kingdom)” (Kwiek, 2018, p. 7). Apart from the introduction, there are also seven chapters, statistical appendices and an extensive bibliography. The language of the introduction is very personal and clearly inviting, encouraging the reader to turn to the following chapters. Each of the chapters brings a new educational perspective into light, accompanied by the author’s data and reflection.

The first chapter is focused on the stratification of academic performance as well as inequality in the production of knowledge. The author is widely “discussing research performance differentials across Europe, with specifically defined top research performers contrasted with their lower performing colleagues” (Kwiek, 2018, p. 16). He also describes the rarely discussed theme of highly productive academics. This part provides information about a large-scale and cross-country corroboration of systematic inequality in knowledge production which is commonly argued among the academicians. The discussion is mostly based on work produced by Lotka and de Solla Price who have argued inequality in knowledge for the first time in sociology of higher education. The results presented from the countries studied show that research productivity is heavily stratified and complex nowadays. The reader will find elaborated explanation on that in the following chapters. What is more, this part is more about exploring the links of productivity with international collaboration differentials which explains also the stratification in this particular area. In this chapter the author shows several research paths which explain his international comparative study. The career paths which are defined by the role of the university in society are explained and described with the conducted research. The results show 11 case studies of national, higher educational systems in Europe. The amount of data helps to fully understand the insight of different forms of stratification in European academic careers. The author’s main aim is to present theoretical background from the sociology of science as well as the Changing Academic Profession survey to be able to analyse and explain significant differences between the higher education systems in various countries.

Chapter Two examines highly paid academics employed in universities in countries mentioned before. According to the author, this particular research differs from and goes beyond previous studies of salary. This chapter represents the valuable and empirically supported approach taken in this particular publication. The reader will find many explanations about current highly paid academics in Europe. The two types of implications announced by Marek Kwiek are crucial for understanding national academic labor markets in Europe.
The next chapter is devoted to the applicability of selected theoretical models of university governance to the 11 higher education systems analysed. The title of this part suggests that it will focus on the collegiality and university governance which is perceived as stratification of academic power. In this chapter the reader will find academic collegiality defined as well as reflections on the institutional and instrumental vision of the university. This analysis enabled the author to define academic attitudes and beliefs in European higher education systems.

The following part is focused on international research stratification and collaboration between international research collaboration (IRC) and international research orientation (IRO). These have been studied at the micro-level of individual academics from the university sector, both cross-generationally, cross-disciplinarily and cross-nationally. Information presented in this chapter differs from existing literature in Europe and focuses on the new findings. The writer’s line of thought is very structured and well-presented in this chapter.

Chapter five is dedicated to patterns in teaching, research, and productivity across academic generations. This part is a response to the relatively few quantitative comparative studies of teaching and research in the academic profession. It also raises the question of non-publishers in academia and the question of investment in teaching time vs research time. The innovative study shows the time spent by faculty on various academic activities across academics of all age groups. This chapter should be of special interest to young academics.

The sixth section is focused on academic age stratification in terms of predictable careers in volatile institutional environments. What is interesting is that this chapter uses qualitative empirical material in contrast to all the other parts in this book. Factors which emerged from this study have a powerful impact on the current and future academic labour market. It is also a fundamental part of the book which shines a perfect spotlight on the major milestones in the academic career in European universities regardless of age or reforms throughout European higher education systems.

The seventh and final chapter summarises the whole publication. Apart from widespread conclusions, the author also presented the implications of policy on academic performance stratification. In general, this section also refers to all the issues listed by the author in the previous chapters with short descriptions. The reader will also find recommendations for future research as well as its predictable restrictions. Moreover, the part about socioeconomic, demographic and political contexts makes this publication even more understandable and readable.

*Changing European Academics* has a presentable and clear structure. Each component of the book is comprehensive and coherent in its language and content.
The studies presented and the choice of the countries makes it a guidebook on social stratification, work patterns and research productivity in Europe. This work confronts common misconceptions of academic work and what is more important, discusses new dilemmas in terms of social and economic environments in higher education. Taken together, these findings highlight a remarkable role for getting to know better current and historical changes in academic institutions and careers. On the whole the book provides an opportunity to understand the importance of the highly stratified academic profession which without any doubt should be important for practitioners, managers and policy makers in higher educational worldwide.

Reference