What kind of factor defines students’ tolerance for diversity?  
- An analysis based on International Civic and Citizenship Education Study -

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Abstract: The aim of this paper is to reveal how the use of ICT (Information and Communication Technology) influences to the tolerance of diversity in culture, ethnicity, religion and background in the society and to find how to improve the tolerance with the use of ICT. ICT can enrich ways of communication of the community, and thus, is expected of improving tolerance. This paper is based on the results of ICCS (International Civic and Citizenship Education Study) 2016 study by IEA (International Association for the Evaluation of Educational Achievement), which examined 8th grade students’ knowledge and understanding of civics and citizenship as well as students’ attitudes related to civics and citizenship in twenty-four (24) countries. We focused on a comparison between ICT and tolerance for European countries using Multiple Linear Regression Analysis. Finally, we propose a way to improve the tolerance for students by introducing ICT tools into their education.

1 Introduction

The education system is deeply affected by globalization in terms of differences in culture, ethnicity, religion and background. Globalization has caused demographic structural changes due to migrations, for example, acceptance of foreign workers. However, the way how children are accepting diversity is an important issue in school societies. That is why, the multicultural education aims to provide equal education opportunities for all students with different race, ethnic structure and from different social group, and to develop dialog among different student groups (Banks et al., 2001; Cirik 2008; Bohn and Sleeter 2000). Furthermore, ICT (Information and Communication Technology) is steadily conspicuous in recent times. ICT is essential for bringing people together because it can connect them with each other and thus, improving teaching and learning among diverse population (Vrasidas, et al., 2007).

However, there are still many issues that are yet to be overcome because, by simply adding ICT in the school curriculum is unlikely to have great effects (Vrasidas, et al., 2007). In fact, the use of technology in education has the potential to support curriculum and policy reform (Vrasidas & Glass, 2005). Educators are also exposed to these issues, which causes several new challenges within education (Aktoprak, et al., 2017). Therefore, educators have to be more creative, flexible, sensitive, equitable and supportive in order to be able to give 21st education (Aydin, 2013).

2 Method

As described above, the authors investigated the relation between outlook related to information media, e.g. the use of ICT and trust for media, and acceptance of diversity-related issues, e.g. students’ knowledge in terms of civic and citizenship education. The authors invoked multivariate analysis technique for the research.

2.1 Research model
The research was designed in accordance to the student knowledge test score and the international student questionnaire data on IEA-ICCS (International Civic and Citizenship Education Study) 2016 study. The relationship was explored by picking up the questionnaire items and the student knowledge test score on IEA-ICCS 2016. We conducted multiple linear regression analysis with these data.

2.2 Sample of the analysis

IEA-ICCS 2016 international database (IDB) contains student civic knowledge test data by 8th graders and international student, teacher, and school questionnaire data collected in the twenty-four (24) countries around the world that participated in the study. We focused on both civic knowledge test score and student questionnaire data in fourteen (14) European countries (Belgium, Bulgaria, Croatia, Denmark, Estonia, Finland, Italy, Latvia, Lithuania, Malta, Netherlands, Norway, Slovenia, and Sweden).

2.3 Data collection

The form to obtain the ICCS 2016 International database is included international student questionnaire file and student civic knowledge test file. Students who participated in ICCS 2016 were administered a questionnaire with questions related to their home background, perceptions of their school context, their attitudes toward civic principles, institutions and important topics in society, as well as aspects related to their civic engagement. The student questionnaire data files contain students’ responses to these questions. They also contain students’ civic knowledge test scores (plausible values) to facilitate analyses of relationships between student background and student perceptions, characteristics and achievement (Köhler, 2018, p.10).

Student civic knowledge test data files contain the students’ responses to the individual test items in the ICCS 2016 assessments. The student test data files are best suited for performing item-level analyses. Students who participated in ICCS 2016 were administered one of eight assessment booklets, each including a series of items. Most of these items were multiple-choice items and some were constructed-response items. The student test data files contain the actual responses to the multiple-choice questions and the scores assigned to the constructed-response items (Köhler, 2018, p.11).

The test scores of students are estimated as five plausible values for each. Plausible values were developed as a computational approximation to obtain consistent estimates of population characteristics in assessment situations where individuals are administered too few items to allow precise estimates of their ability (AERA, online).

2.4 Data analysis

The authors have discussed which items are related to information media-related outlook and mind of diversity-related issues. Table 1 shows selected items of IEA-ICCS 2016 international student questionnaire used as independent variables for multiple linear regression analysis. The dependent variable of the analysis is plausible values of the student knowledge test score.

IEA IDB Analyzer (IEA, online) is a software to obtain data allow for processing weighted data for analysis. The weighted data is needed to proceed with analysis of the study because the data naturally have complex and unequal sample selection process among each country so that unconcerned data processing can lead to severely biased results. So, the authors used the obtained data from IEA IDB Analyzer. The examination of the obtained data is deployed on SPSS ver.23.0J. The software reveals the analysis results of each country and the table average of these countries. The authors have used the results of fourteen (14) European countries above mentioned and the table average of each country’s results.

3 Findings

The findings related with the international student questionnaire data files and student civic knowledge test data file are shown below. The aim was to identify the factors and the association level between to information media-related outlook, e.g. ICT tool use, and acceptance of diversity-related issues. The result is based on the score they obtained by the student knowledge test and answers on the international student questionnaire.
According to the multiple regression analysis results for each country with questionnaire items in Table 1, adjusted R-square values are between .07 and .18. The arithmetic average of the Adjusted R-square values of fourteen European countries is .13. The authors can reveal a certain degree of correlation (Coefficient R=.36) between the selected items from the student questionnaire and the score of the civic knowledge test.

According to the results, students who scored high on the civic knowledge test and can use ICT tool effectively, tend to have a highly positive tolerance attitude. The distribution of the participated European student’s international questionnaire answers and civic knowledge test score in multiple linear regression analysis are shown in the Table 2. The descriptive statistic variables are the student knowledge test score, the use of ICT, and diversity-related issues such as tolerance.

However, the authors may point out some curious results. In terms of trust of media, trust of so-called “mass media,” such as TV and newspaper, has positive correlation to the student knowledge test score. But, trust of so-called “social media,” such as SNS and blogs, has negative correlation to the student knowledge test score (Q26h: Trust social media (Twitter, blogs, YouTube)). The authors also found such opposite relations in terms of activities to express students’ opinion (Q14h: Post a comment of political or social issues on the Internet; Q14i: Share online post of a political or social issue; Q30f: Organize an online group on a controversial issue). Although it needs further consideration to indicate a cause and its implication, but it is true that some items of the student questionnaire regarding social media might be applicable to regression expression negatively.

The author has analyzed the relation between such selected items from international student questionnaire and the other typical item regarding tolerance from the questionnaire; “Q23 How important are the following behaviors for being a good adult citizen? i) Taking part in activities promoting human rights.” But the result (R-square) to regression formula is not applicable for further discussion.

4 Discussion

The findings of the research might suggest that, students who get high score on knowledge test and can use ICT tools effectively, their attitudes toward tolerance for diversity is highly positive. Similar suggestion found in a related literature (F. Altinay. et al., 2017) revealed that technology is crucial for establishing appreciation and tolerance education from the research focusing on evaluating national curriculum of seven counties, e.g. Bosnia and Herzegovina, Croatia, and Timor-Leste, that are displaying controversial issues, the integration and implementation of peace education and peace related elements in national curriculum. They also described that the lessons and activities by means of ICT should not be limited only as in-class activities, but should involve civilian public organisations, municipalities, and the media in coordination and consciously to work harder for the community to benefit from.

The authors point out that this claim supports how to use ICT is crucial. We may say that lessons and activities for the community with the support of ICT would cultivate young generations with tolerance of diversity in culture. Offering eye-opening experiences through the help of ICT might well heighten awareness of students’ future in the age of Internet era. For example, a literature by Vrasidas. et al., (2007) describes activity will be to work with teachers to help them develop online activities for their students to present their work, express their views about environmental, peace and reconciliation. Allowing students to represent knowledge they create using a variety of media (e.g. text, graphic, photos) will also facilitate their knowledge-building skills. The authors also pointed out that teacher collaboration with their tool which taking place face-to-face and online also empowering teachers.

Consequently, in order to develop tolerance of students, we need to focus on a way how teacher education would include blended learning, i.e. face to face and/or online way of collaboration of teachers.
Table 1: Picked Items of Student Questionnaire Entered for Multiple Linear Regression Analysis

Q12 How many of the following devices are used regularly in your home?
   a. Desktop or portable computers (laptop, notebook or netbook)
   b. Table devices or e-reads (e.g. <iPad> or <kindle>)
   c. Mobile phones with Internet access (e.g. <smart phones>)

Q13 Do you have an Internet connection at home?

Q14 How often are you involved in each of the following activities?
   g. Using Internet to find information about political or social issues
   h. Posting a comment or image regarding a political or social issue on the Internet or social media
   i. Sharing or commenting on another person’s online post regarding a political or social issue

Q20 During the last three months, how often did you experience the following situations at your school?
   f. Student posted offensive pictures or text about you on the Internet

Q26 How much do you trust each of the following groups, institutions or sources of information?
   g. Media (television, newspaper, radio)
   h. Social media (e.g. <twitter, blogs, YouTube>)

Q30 There are many different ways how citizens may express their opinions about important issues in society.
   Would you take part in any of the following activities to express your opinion in the future?
   e. Contribute to an online discussion forum about social or political issues
   f. Organize an online group to take stance on a controversial political or social issue
   g. Participate in an online campaign

| Item | Regression Coefficients | Coefficient Std. Coef. | Std. Coef. | Std. Coef. | Pr(>|t|) | (Significance: *p<.05, **p<.01, ***p<.001) |
|------|------------------------|-------------------------|------------|------------|---------|------------------------------------------|
|      | (Intercept)            | (Estimate)              | (Estimate) | (SE)       | (t-value) |                                       |
| Q12a | Use PCs in your home   | 9.24                    | 0.09       | 0.01       | 15.23    | *** More Use, High Score               |
| Q12b | Use Tablet device in your home | -2.3                | -0.03      | 0.01       | -4.23    | *** Less Use, High Score               |
| Q12c | Use Mobile phones with internet access | 2.08                  | 0.01       | 0.01       | 2.08     | * More Use, High Score                |
| Q13  | Internet connection at home | -38.85               | -0.05      | 0.01       | -7.87    | *** Have Access, High Score           |
| Q14b | Watch TV about national/international news | 5.07                  | 0.06       | 0.01       | 10.37    | *** More Involved, High Score         |
| Q14g | Use the Internet for finding political or social information | 9.23                  | 0.10       | 0.01       | 16.68    | *** More Involved, High Score         |
| Q14h | Post a comment of political or social issues on the Internet | -11.71                | -0.08      | 0.01       | -11.36   | *** Less Involved, High Score          |
| Q14i | Share online post of a political or social issue | -4.76                  | -0.03      | 0.01       | -4.5     | *** Less Involved, High Score          |
| Q20f | Experience offensive info about you on the Internet | -14.36                | -0.08      | 0.01       | -13.85   | *** Less Experienced, High Score      |
| Q26g | Trust media (TV, Newspaper, Radio) | -4.65                  | -0.04      | 0.01       | -6.1     | *** More Trustful, High Score         |
| Q26h | Trust social media (Twitter, blogs, YouTube) | 15.92                 | 0.15       | 0.01       | 22.92    | *** Less Trustful, High Score         |
| Q30e | Contribute to an online forum about social or political issues | -10.9                 | -0.10      | 0.01       | -14.53   | *** More Positive, High Score         |
| Q30f | Organize an online group on a controversial issue | 17.56                 | 0.16       | 0.01       | 20.15    | *** Less Positive, High Score         |
| Q30g | Participate in an online campaign | -7.91                 | -0.07      | 0.01       | -10.44   | *** More Positive, High Score         |
| Q2  | Gender                 | 20.88                  | 0.12       | 0.01       | 21.48    | *** Females score High                |

Table 2: Effects of Media and ICT use on IEA-ICCS 2016 Knowledge Test Score
References


