

## The thematic content analysis of the scales used in citizenship education

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### ARTICLE HISTORY

Received: Feb. 22, 2021

Revised: Jan. 17, 2022

Accepted: Feb. 02, 2022

### Keywords:

Citizenship,  
Citizenship education,  
Scale development,  
Scale adaptation,  
Thematic content analysis.

**Abstract:** This study aimed to scrutinize the scales used in citizenship education in Turkey through thematic content analysis. In the study, all of the scales developed/adapted within the scope of citizenship education without a year limitation were reviewed and 56 scales found in these studies were evaluated. The document analysis was used as the method of data collection. It was determined that the scales examined in the study were mostly published within the scope of doctoral dissertations and articles. Most of the scales were developed/adapted in 2016, a great majority of which were developed by researchers themselves whereas a small number of which were adapted from other cultures into Turkish. The most frequently used key words in the studies where the scales were available were “citizenship”, “social studies” and “citizenship education”. The sample mostly used in the scales were composed of university students and the most frequently used sample size included 201-300 participants. It was concluded that the relevant scales considered multi-factor structures in relation to citizenship. In addition, a number of deficiencies were found in analysing the psychometric properties and recommendations were made accordingly.

## 1. INTRODUCTION

Citizenship, which originated from the word citizen in antique Greek city states, today represents individuals' membership/loyalty to the state or political community they belong to. In addition to having a number of rights as a result of such adherence, citizens also take on certain duties and responsibilities. Citizenship as a concept which has political, legal and social bases and a dynamic phenomenon has changed throughout history. This concept has broadened more throughout history on the axis of social and economic changes and has taken on new dimensions. The concept has gone beyond expressing loyalty to a state or a community and acquired transnational properties especially along with globalisation and with the advance of technology. The reasons for the transformation in the conception of citizenship include several factors such as global environmental problems (the unproportioned use of nuclear energy-based products, global warming, climate change, environmental pollution, extinction of species of animals, etc.), the need for digital literacy (problems related to confidentiality and protection of personal information, cyber-attacks, cyber loafing, cyber bullying, etc.) and the protection of minority rights (not paying attention to the law of immigration and refuge, not giving the right of self-management, refusing cultural diversity, increase in racist movements, etc.). The above-mentioned problems concern not only a community but also the whole universe and pose a

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threat to all humanity. It is a reality that those problems cannot be eliminated with traditional mentality of citizenship (Özel, 2007) because it is no longer considered adequate to be aware of responsibilities for one's country and to perform the duties. Citizens who have responsibilities for the whole world, who choose to play a part in solving the problems, and who take action accordingly are needed today (Şahin, et al., 2016). This situation has necessitated the changes in the types of citizens that many countries wish to raise or have (Eurydice, 2017; Gezer, 2020).

Strengthening citizenship competencies through education has recently become an important theme in politics, the public, and the scientific world (Eurydice 2012, 2017). Basically, it is aimed, with citizenship education, to ensure the active participation of individuals in political and social life as free individuals, to raise awareness of individuals about the protection and support of the democratic system with common democratic values (Loobuyck, 2021), and to prepare individuals for citizenship with the awareness of their citizenship duties and responsibilities (Kerr, 1999). However, there is no common view on the content of citizenship education. Therefore, the citizenship education includes diverse content and objectives. Some countries may place more emphasis on ensuring that students have the knowledge, skills and attitudes necessary to become active and socially responsible citizens. Others may prioritize effective and constructive interaction within and between communities or pay more attention to the development of personal traits such as critical thinking (Eurydice, 2017). Thus, citizenship and citizen competencies in several areas have been re-defined and new dimensions to citizenship such as environmental/ecological citizenship, cultural citizenship, multi-cultural citizenship, minority citizenship, digital citizenship, active citizenship, economic citizenship, democratic citizenship, and constitutional citizenship have been put forward.

The expansion of perspective and meaning in the concept of citizenship has also necessitated taking those dimensions into consideration in measuring citizenship. Therefore, new scales for measuring the multi-dimensional structure of citizenship were developed (Erdem & Koçyiğit, 2019; Beseler, et al., 2021; Çermik & Akçay, 2020; Hadjichambis & Paraskeva-Hadjichambi, 2020; Homer, 2020; İşman & Güngören, 2014; Karatekin & Uysal, 2018; Kim, & Choi, 2018; Lo, et al., 2019; Şahin & Çermik, 2014; Yazıcı et al., 2017; Yıldırım, 2018), all of which were included in the literature. Depicting the scales in the literature in general terms is important in understanding the attempts better at measuring citizenship. Hence, the present study aims to put the citizenship scales used in the Turkish literature in the area of social studies education to thematic content analysis. This research functions as a scientific resource where researchers studying in the field of citizenship education can see the scales developed/adapted on the subject. The results of this specific research also present a general picture of which dimensions and at which education level citizenship education is mostly studied. In other words, what dimensions of citizenship education are considered in more detail and what dimensions are considered in a limited manner can be seen by means of this study. In this regard, the study is thought to guide researchers in terms of including in the literature the required dimensions related to scales. In addition, the scales developed/adapted within the scope of citizenship education in the research are evaluated in terms of validity and reliability processes, so the present research also provides information about the compliance of the relevant scales with the scale development/adaptation standards.

Studies of thematic content analysis are capable of contributing to making knowledge widespread and shaping the future research studies in that they consider UpToDate studies in a holistic perspective and that they demonstrate the similarities and differences between studies (Braun & Clarke, 2006; Çalık & Sözbilir, 2014). Accordingly, analysing the scales developed or adapted in citizenship education through thematic content analysis contributes to the literature. The scales are evaluated in a critical perspective and efforts made to give a general picture of the weaknesses and strengths of the studies which used the scales. Therefore, it is

expected to function as a scientific resource for researchers who plan to perform studies on citizenship education since it presents the current measurement instruments. In this way, it also provides researchers in the area of citizenship education with a resource in which the researchers can see the contemporary scales put together.

Review of relevant literature demonstrates that several studies have been conducted to examine the scale development/adaptation research. Some of these studies evaluate the compatibility of the stages followed with scale development/adaptation processes independently of the subjects and disciplines in which the scales are developed or adapted (Acar Güvendir & Özer Özkan, 2015; Çüm & Koç, 2013; Kaya Uyanık et al., 2017; Tavşancıl et al., 2014; Yurdabakan & Çüm, 2017). Some other studies analyse the scale development/adaptation activities in certain disciplines such as mathematics and science (Delice & Ergene, 2015; Ergene, 2020; Tosun & Taşkesenligil, 2014), management and organisational behaviour (Kanten & Arda, 2020) and music education (Çelik & Yüksel, 2020). Some others, on the other hand, act more specifically and make a content analysis of the scales in a specific subject only. For instance, Chandu et al. (2020) analyse the measurement instruments about corona virus in more recent studies. Studies which consider the scales related to citizenship education with thematic content analysis, however, are not available in the literature. The study is therefore thought to be original in this sense.

### **1.1. Research Questions**

This study aims to analyse the scales available in citizenship education in Turkey through thematic content analysis. In this sense, the problem sentence of the research is “How is the current situation regarding the scales developed/adapted within the scope of citizenship education in Turkey?” Based on this main problem, answers to the following sub-problems were sought in the study:

1. What is the distribution of the scales according to types of studies in which the scales are available?
2. What is the distribution of the scales according to years?
3. What is the distribution of the scales according to whether they are developed or adapted?
4. What are the key words used in the studies where the scales are available?
5. What is the distribution of the scales according to the stage of education for which validity and reliability tests were done?
6. What is the sample size used in the scales and is it enough when the number of items in the scale is considered?
7. What are the reliability estimating methods used in the scales?
8. What are the proofs of validity used in the scales?
9. What is the distribution of the scales according to the number of factors they have?
10. What is the distribution of the scales according to subjects?

## **2. METHOD**

### **2.1. The Research Model**

This research, which aims to examine the trends in scale development and adaptation studies in the field of citizenship education, is suitable for thematic content analysis. Several researchers emphasise that they do not consider thematic content analysis as a separate research method because it is a procedure employed in qualitative studies and that it should be considered as a technique which provides researchers with convenience (Nowell et al., 2017). Thematic content analysis is a qualitative research technique which involves describing, analysing and reporting the patterns in the data (themes) (Braun & Clarke, 2006). The technique is quite useful in summarising or analysing the basic properties of large qualitative data sets (Nowell et al., 2017). Studies using thematic content analysis are important in that they provide researchers who study

in relevant areas, who cannot reach all the studies in the area, and who cannot analyse them systematically with rich resources (Ültay & Çalık, 2012).

## 2.2. Data Collection

The developed/adapted scales were reached by reviewing the national thesis data centre of the Council of Higher Education and by searching via Google scholar. No year limitation was applied during the browsing. The pages in Turkish were scanned by writing the Turkish key words “citizenship and scale\*” on Google search engine in determining the scales to be analysed. All the probable results can be found by using the mark “\*” at the end of the words while searching on Google. On searching by writing “scale\*”, for instance as in this study, both the word “scale in singular form” and its derivations “scales”, “of the scale(s)”, and “scale(s) in object position in sentences” can be accessed. Browsing was terminated on 17th January 2021. Therefore, the studies published after that date was excluded from the scope of this study.

After browsing the scales on Google scholar, the key words “scale” and “citizenship” were entered in the detailed search section on the national thesis centre database, the area of “social” was chosen and thus the scales were searched. The criteria for selecting the theses to be analysed were entered on the detailed search page of the thesis centre of the Council of Higher Education of Turkey, and thus the theses with scales developed or adapted in relation to citizenship education were included in the scope of this study. For the scale development/adaptation articles produced from the theses, only the thesis study in which the scale was published was taken into account during the scanning process. As a result, 56 scales in total which were developed or adapted were reached. All the studies mentioned are listed in [Appendix-1](#).

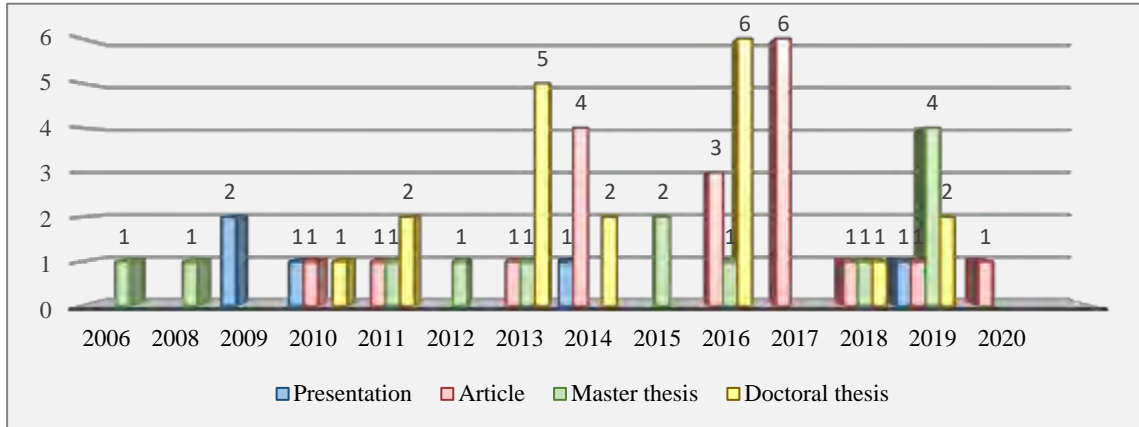
## 2.2. Data Analysis

Content analysis technique was used in the evaluation of the data obtained in this study. The purpose of content analysis is to reach concepts and relationships that can explain the collected data. The data summarized and interpreted in descriptive analysis are subjected to a deeper processing in content analysis, and concepts and themes that cannot be noticed with a descriptive approach can be discovered as a result of this analysis. The basic process in content analysis is to gather similar data within the framework of certain concepts and themes and to organize and interpret them in a way that the reader can understand (Yıldırım & Şimşek, 2011). A checklist to help to analyse the scales used in citizenship education was created prior to the content analysis. The checklist aimed to set standard criteria for content analysis of the scales and consisted of two sections called “study tag” and “theoretical information”. When we look at the content analysis studies in the literature (Kaya Uyanık et al., 2017; Taşdelen Teker & Güler, 2019), it is seen that in the case of using a checklist, expert opinion is sought to determine the suitability of the checklist in terms of scope and content. From the point of this view, two experts of measurement and evaluation who studied scale development and scale adaptation were consulted for their opinions of the checklist. The experts recommended that measurement invariance, convergent validity, and divergent validity also be included in the heading of “validity and reliability evidence” as a label used in describing the studies analysed. Thus, the checklist was modified to include the suggestions (see [Appendix-2](#)). It has no criteria which can be interpreted differently by different individuals in the checklist. Therefore, coding by one expert was considered sufficient. While analysing the data it was found that the sample groups were described as university students in some of the scales whereas they were described as prospective teachers in some others. For this reason, in the study, the mentioned distinction was followed in the coding of the sample group. In addition, the statistical processes in testing the psychometric properties of the scales were categorised separately for scale development and scale adaptation studies because evidence provided for the validity and reliability can differ in scale development studies from the ones in scale adaptation studies. Frequency and percentage analyses of codes were calculated for each theme.

### 3. FINDINGS

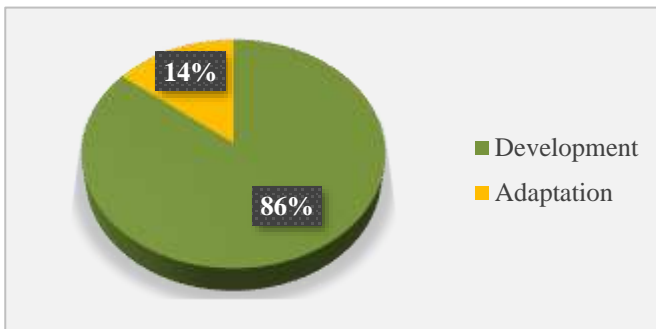
The type of studies in which the scales were published and their distributions according to years were checked in this study. The findings obtained are shown in [Figure 1](#).

**Figure 1.** The distribution of the scales according to years and types of study.



According to [Figure 1](#), the studies in which citizenship scales were developed or adapted were mostly in the year 2016. There was only one study in 2006, 2008, 2012 and 2020 each. The majority of the scales of citizenship education were in doctoral theses and in articles. The number of M.A theses was smaller than the number of doctoral theses or of articles, and the number of conference presentations was much smaller. Having analysed the scales according to years and types of studies, they were analysed according to whether they were developed by researchers themselves or they were adapted from another culture. The findings in this respect are shown in [Figure 2](#).

**Figure 2.** The distribution of the scales according to whether they were developed or adapted.



It is apparent from [Figure 2](#) that the majority of the scales analysed (86%) were developed by researchers themselves while the minority of them (14%) were adapted into Turkish culture from other cultures. After that, the answer was sought to the question of “what key words were used in the studies analysed?” The frequency of the key words used in the studies in which the scales were available is shown in [Table 1](#). The frequencies for the key words were visualized through frequency questioning instead of tabulating them since the number of the key words was great. The size of the shapes obtained through word frequency questioning in [Table 1](#) is directly proportionate to the frequency weight of the words.

**Table 1.** *The frequency questioning for the key words.*

Key Words	Frequency	Key Words	Frequency
Citizenship	21	Secondary School	3
Social Studies	16	Prospective Teachers	3
Citizenship Education	13	Democracy	3
Digital Citizenship	7	Democracy Education	3
Social Studies Education	6	Citizen	2
Peception of Citizenship	4	Democratic Citizenchip	2
Global Citizenship	4	Active Citizenchip	2
Effective Citizenchip	4	Socio-Scientific Issues	2
Validity	4	Factor Analysis	2
Reliability	4	Global Citizenship Education	2
Scale Development	4	Social Media Citizenship Perception	2
Teacher	4	Internet	2
Effective Citizenship Self-Efficacy Scale	3	Citizenship Knowledge	2
Globalization	3	Human Rights	2
Global Citizen	3	Consciousness of Citizenship	2
Values Education	3	Responsibility	2
Character Education	3	The Other	44

According to [Table 1](#), the most frequently used key words in the studies were citizenship, social studies, and citizenship education, followed by digital citizenship, social studies education, perception of citizenship, global citizenship, effective citizenchip, validity, reliability, scale development, and teacher. There are also 44 keywords with a frequency of 1. After analysing the key words, the sampling stages and sample size were checked. It was determined that two of the scales published in the form of conference presentations were applied to secondary school students, two to prospective teachers and one to university students. Six of the scales published as article were applied to teacher candidates, five to secondary school students, five to university students, one to social studies teachers, and one to high school students. It was determined that 11 of the scales published within the scope of the thesis were applied to secondary school students, 10 to prospective teachers, four to university students, four to secondary school teachers, two to primary school students, one to high school students, and one to university students. The findings for the distribution of the studies according to sample size are shown in [Table 2](#).

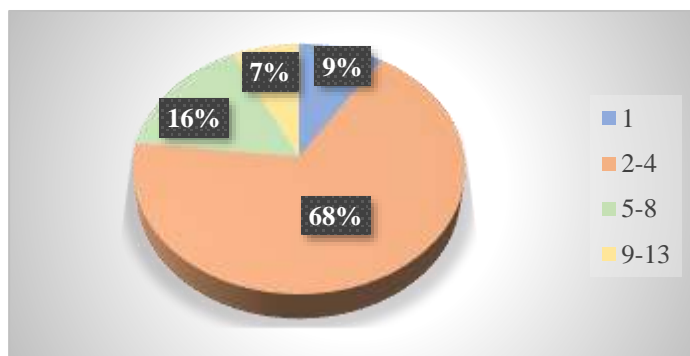
**Table 2.** Findings for sample size and number of item in the scales.

Research Id	Number of Item		Sample Size	Research Id	Number of Item		Sample Size
	Initial form*	Last form*			Initial form*	Last form*	
1	43	18	392	29		55	710
2		73	414	30		43	786
3		18	635	31	29	29	291
4	45	27	480	32	29	29	291
5	41	28	150	33	22	14	432
6	45	29	374	34		35	100
7	59	29	272	35	24	13	623
8	28	18	229	36		5	116
9		34	1063	37	51	16	635
10	120	67	625	38		20	494
11	80	32	480	39		28	238
12	13	11	241	40	64	45	500
13	31	27	180	41	45	38	672
14	44	24	532	42	41	20	1028
15	74	48	311	43	46	25	503
16	24	23	317	44	53	38	2190
17		21	400	45	10	10	250
18	145	87	2144	46		28	1099
19	42	25	544	47	35	35	185
20	63	49	438	48	23	21	295
21	65	33	670	49	40	15	200
22		25	297	50	40	23	100
23		30	241	51		84	150
24	42	18	288	52		20	1467
25		30	429	53	36	29	323
26	56	33	183	54	11	10	323
27	51	20	249	55	9	7	323
28	84	57	352	56		25	552

\*While the initial form includes the number of items included in factor analyses and the last form includes the number of items in the scale as a result of factor analyses.

According to Table 2, the most frequently used sample size in the studies analysed were between 201 and 300 participants. In addition, the sample size of eight out of 56 studies was less than five times the number of items in the initial form. The number of factors was focused on after analysing the sample size. Figure 3 shows the findings.

**Figure 3.** The distribution of the number of factors in the scales.



It is apparent from Figure 3 that the number of scales with one factor is limited (only 9%). Most of the scales (68%) have 2-4 factors. The scales with 5-8 factors and those with 8-13 factors are also few. Table 3 below shows the distribution of the scales according to their subject matter.

**Table 3.** *The distribution of the scales of citizenship education according to their subject matter.*

	Primary School	<i>f</i> Secondary School	<i>f</i> High School	<i>f</i> University Students	<i>f</i> Prospective Teachers	<i>f</i> Teachers of Social Studies	<i>f</i>
Conference presentations		Knowledge of citizenship	1	Global citizenship	1 Active citizenship	1	
		Perceptions of citizenship	1		Citizenship competencies	1	
Articles		Citizenship skills	1	Feelings of citizenship	1 Digital citizenship	2 Global citizenship	3
		Attitudes towards citizenship education	2	Perceptions of good citizenship	1 Global citizenship	1 Ecological citizenship	1 Ideology of citizenship education
		Digital citizenship	1		Active citizenship	2 Effective citizenship	1
		Effective citizenship	1			Digital citizenship	1
Theses	Active citizenship	1 Attitudes towards the citizenship and Democracy education course	4	Democratic citizenship	1 Perceptions of citizenship on social media	1 Good citizenship	1 Digital citizenship
	Global citizenship	1 Perceptions of citizenship	2		Perceptions of citizenship	2 Perceptions of citizenship	1 Perceptions of the goals of citizenship course
		Citizenship consciousness	2		Citizenship competencies	1 Attitudes towards patriotism	1 Perceptions of the activities in citizenship course
		Ecological citizenship	1		Digital citizenship	1 Types of citizenship	1 Perceptions of the teaching quality in citizenship course
		Global citizenship	1			Global citizenship	1
		Digital citizenship	1			Active citizenship	2
					Effective citizenship	1	
					Digital citizenship	1	



According to [Table 3](#), the scales used in citizenship education centre around global citizenship, digital citizenship, effective citizenship, and active citizenship. There are limited number of instruments to measure ecological citizenship. Besides, it was also found that the scales for determining the attitudes towards the citizenship education course, perceptions of good citizenship and of the concept of patriotism, citizenship consciousness, knowledge of citizenship, and citizenship competencies were developed or adapted. Finally, the reported validity and reliability evidence was checked. The findings are shown in [Table 4](#) by taking scale development and scale adaptation into consideration.

**Table 4.** *The number of validity/reliability evidence reported in the scales of citizenship education.*

		Developed	Adapted	
Validity evidence	Construct	Confirmatory factor analysis (CFA) only	0	4
		Exploratory factor analysis (EFA) only	27	2
		Both CFA and EFA	18	2
		Convergent-divergent validity	0	0
		Known groups validity	0	0
		Criterion related validity	1	1
		Measurement invariance	0	0
		Unreported	3	0
	Expert opinion	40	–	
	Content	Content validity rate index	0	–
Unreported		8	–	
No validity evidence was reported		1	0	
Item analysis	Only lower-upper groups were compared	6	0	
	Only item-test correlations	8	5	
	Both lower-upper groups compared and item-test correlations	8	0	
	Unreported	26	3	
Reliability evidence	Only Cronbach's Alpha	48	8	
	Test-retest method	5	1	
	Parallel forms method	2	0	
	Split half reliability (Spearman Brown and Guttman)	7	1	
	No reliability evidence was reported	0	0	

As evident from [Table 4](#), only CFA was used in four out of eight scale adaptation studies whereas both EFA and CFA were used in two studies and only EFA was used in two studies. It was found on analysing the scales adapted in terms of item analysis that five out of eight scales did item analysis but that the remaining three scales did not do item analysis. Item-test correlation was calculated in all of the five scales in which item analysis was done. Besides, it was also found that Cronbach's Alpha internal consistency coefficient was used so as to estimate the reliability of the measurements in all the adaptation studies. Test-retest and split half reliability was also calculated in addition to internal consistency reliability in one of the scales.

According to [Table 4](#), only EFA was done for construct validity in scale development studies mostly EFA and CFA were used in combination in a considerable number of studies. There were no scale development studies in which only CFA was used In one of the studies, however, criterion related validity was calculated in addition to EFA and CFA. The number of studies that offered no statistical evidence for construct validity was three.

Expert opinion was consulted for content validity in 40 out of 48 scale development studies. Content validity rate index was not calculated in any of them. Thus, no evidence was provided for content validity in eight of the studies. No evidence was provided for validity in one of the

studies. Convergent validity, divergent validity, known groups validity, or measurement invariance were not tested in any of the scale development studies as in the case in adaptation studies. On revising the scale development studies in terms of item analysis, only lower group-upper group comparison was looked at in six studies, only item-test correlations were looked at in eight studies and both the lower group-upper group comparison and item-test correlations were looked at in eight studies. On the other hand, no statistical findings were found in 26 studies.

Cronbach's Alpha internal consistency reliability was calculated in all of the scale development studies as in scale adaptation studies. Split half reliability beside Cronbach's Alpha internal consistency coefficient was reported in seven of the studies. It was found that test-retest reliability was calculated in one of the seven studies and that test-retest reliability and parallel forms reliability were calculated in one of the seven studies. Besides, it was also found that the only reliability evidence provided apart from Cronbach's Alpha was test-retest coefficient. In one of the studies, on the other hand, test-retest reliability and parallel forms reliability in addition to Cronbach's Alpha were checked.

#### **4 DISCUSSION and CONCLUSION**

In this study, the scales developed or adapted for citizenship education in Turkey were put to thematic content analysis with no limitation on the year when they were developed or adapted. Thus, 56 scale development/adaptation studies in total were analysed in the research. The analyses demonstrated that the studies were conducted mostly in the year 2016. In terms of years, it can be said that there has been an increase in the number of studies towards the present. The majority of the scales were developed/adapted in doctoral theses and articles, while only a few of them were published in MA theses and in conference presentations. It is necessary to work with relatively large samples and to follow a multi-stage process in scale development/adaptation studies. This situation can be considered as the reason why researchers do not engage in such a process much in their master's theses and conference presentations. That is, when they consider the effort they put into collecting and analyzing the data, many researchers tend to publish their studies as an article instead of concluding their efforts with a conference presentation. In addition, the time needed for the scale development and adaptation processes may cause time anxiety for researchers writing master's thesis. Since doctoral theses are spread over a longer period compared to master's theses, researchers may experience less temporal anxiety about undertaking the scale development/adaptation process. In addition, researchers writing a master's thesis may be reluctant to engage in the scale development/adaptation process due to their lack of knowledge/experience and being at the beginning of the road. These listed factors can be considered as the reasons why scale development/adaptation processes are heavily used in doctoral theses, but not so often in master's theses.

Secondly, it was concluded that the majority of scales were developed and only a few of them were adapted to Turkish culture. Citizenship is a dynamic structure and the meaning attributed to the concept of citizenship can also differ from society to society (Schugurensky, 2005). For example, military service in Iceland is not a civic duty, whereas in Israel, military service is one of the basic duties for all citizens, regardless of whether they are men or women. In Turkey, military service is defined as a duty for every male citizen who does not have a health problem. This structure of citizenship, which changes from society to society and which is open to being affected by cultural elements, may have led researchers to scale development studies instead of adapting measurement tools developed in different cultures into Turkish.

When the keywords used in the studies in which the scales were examined, it was determined that the words "citizenship", "social studies", and "citizenship education" were mostly used. Such a result is not surprising, considering the fact that a search was made with the expression of citizenship while determining the studies to be examined in the research. In this sense, the result that is more striking about the keywords and that needs to be interpreted more is that the subject area in which the scales are developed is frequently included in the keywords. For example, the keywords of digital citizenship, global citizenship, and citizenship perception were used more frequently.

Considering the preferred sample level in the scales, it was concluded that the most frequently studied group is university students (pre-service teachers and students studying in other faculties). University students are generally a more accessible sample for researchers. Therefore, researchers may prefer to study on university students rather than studying at other educational levels. It is thought that individuals' understanding of citizenship is shaped in early adulthood because the first thing that comes to mind when the citizen is mentioned is usually the adult person. Being young, on the other hand, corresponds to a transition/becoming rather than a state and is somewhere between a child and an adult. Therefore, in this early adulthood, the individual learns citizenship through certain experiences (Kalaycıoğlu & Çelik, 2008). The fact that individuals' understanding of citizenship is only fully shaped in their first adulthood may be another reason for the scales being developed/adapted mostly on university students. When the studies were examined according to the sample sizes, it was determined that the scale development and adaptation studies were mostly carried out with research groups containing 201-300 participants. In other words, researchers may have preferred sample sizes between 200 and 300, with the thought of being sufficient for validity and reliability analyses on the one hand, and being economical on the other. Furthermore, the sample size of eight out of 56 studies was less than five times the number of items in the initial form. Researchers have made different suggestions about the number of participants that should be included in factor analysis studies. Cattell (1978) recommends that three to six times the number of items in the scale be included in the study group in factor analysis studies and states that 200 participants are acceptable for factor analysis and 500 participants is a very good number. Gorsuch (1983) recommends that there be at least five participants in the study group for each item in the scale in factor analysis studies, however, he states that the number of participants should not be less than 100 (Cramer, 2003). These suggested criteria for sample size may be a reference for researchers. As a result, it can be said that in most of the studies, the sample size selection was determined to be five times the number of items.

Another result of the research is related to the number of factors in the examined scales. While a single factor structure was observed in a very small part of the scales, a multidimensional structure consisting of at least two factors was revealed in most of the scales. This result can be interpreted as a reflection of the transformation of citizenship into a comprehensive concept that includes many dimensions.

When the scales subject to the research were examined in terms of validity evidence, it was determined that EFA was applied in almost all of the scale development studies. EFA is an exploratory analysis to reveal the structure observed in the scale. Since there is no empirical dimensioning in scale development studies, it is expected that EFA will be applied in almost all of these studies. In a substantial part of the scale development studies, CFA was performed together with EFA. Since it is not possible to reach definite results in social sciences as in science, it is important to support the results obtained with more than one evidence. It is estimated that the use of CFA together with EFA in studies stems from this idea.

When we look at the scale adaptation studies, it can be seen that the rate of research that does not include EFA and only applied CFA is higher than that of scale development. In scale

adaptation studies, there is a measurement tool that was previously developed in another culture, that is, the factor structure was empirically revealed. In other words, in adaptation studies, it is questioned whether the factor structure in the culture in which the scale was developed is also valid for a certain target culture. In this respect, it is a reasonable result that only CFA was applied in most of the scale adaptation studies. Convergent-divergent validity and measurement invariance were not tested in any of the scale development/adaptation studies. This result can be attributed to the competence levels of the researchers who developed/adapted the scales in the field of measurement and evaluation. Indeed, when the related literature is reviewed, it is seen that almost all of the studies on measurement invariance in Turkey belong to researchers in the field of measurement and evaluation. This situation observed in measurement invariance also shows itself in convergent-divergent validity studies. The fact that criterion-related validity was included in only one study can be explained by the difficulty in the data collection process because this type of validity requires the application of another measurement tool related to the subject of the scale, along with the scale that is aimed to be developed/adapted to the participants. This can complicate the data collection process and make it difficult for researchers to test criterion-related validity.

In most of the scale development studies examined in the research, expert opinion was sought in order to make a judgment about the content validity. The assessment of content validity relies on using a panel of experts to evaluate instrument items and rate them based on their relevance and representativeness to the content domain. It is recommended to use the statistics such as percent agreement and modified Kappa in order to obtain a Content Validity Index (CVI) based on expert judgements. Content validity indices are essential factors in the instrument development process and should be treated and reported as important as other types of construct validation (Almanasreh, et al, 2019). However, no study has reported the content validity index based on expert opinions. More clearly, the evidence presented for content validity remained at the qualitative level, but was not converted into a quantitative value. In some of the studies, no information was given about the processes to ensure content validity. However, no matter how well the researcher has reviewed the literature and prepared the items carefully, he/she should seek the opinions of experts in order to ensure the content validity of the measurement tool he/she has created and preferably make these views more concrete by calculating the content validity index.

Considering the reliability evidences, it was seen that the Cronbach alpha internal consistency coefficient was calculated in all of the scale development and adaptation studies. This result is in line with the conclusions of the study in which Acar Güvendir and Özer Özkan (2015) examined the articles on scale development and adaptation in the field of educational sciences and the studies in which Şahin and Boztunç Öztürk (2018) subjected the scale development studies in the field of education to content analysis. The number of studies in which parallel form and test-retest reliability were calculated is very limited. This result can be associated with Cronbach's alpha being a more useful reliability determination method for researchers. More clearly, Cronbach's alpha is a reliability estimation method based on a single application. On the other hand, test-retest reliability requires applying the scale to the same group twice with a certain time interval. Again, in the parallel form method the reliability coefficient is estimated by administering another measurement tool that measures the same construct as the scale developed/adapted by the researcher to the same sample group (Boztunç Öztürk & Şahin, 2021). It can be stated that the necessity of two different applications leads to the use of test-retest and parallel form reliability less frequently.

Another remarkable result regarding reliability is that in addition to Cronbach's alpha, split-half reliability is reported in some measurement tools. Like Cronbach's alpha, split-half reliability is a useful method of determining internal consistency. The average of all possible split-half

reliability values that can be calculated for a measurement tool is identical to the Cronbach's alpha internal consistency coefficient if two halves are equal (Warrens, 2015). In this sense, while Cronbach's alpha has already been reported, the calculation of the split-half reliability does not provide more information about the internal consistency of the measurements. Reporting Cronbach's alpha and split-half reliability together shows that this situation can be ignored by the researchers.

According to the examinations on item analysis, it was understood that in about half of the scale development and adaptation studies, no analysis for item discrimination was included. The fact that item discrimination indices are generally parallel to factor loads obtained from factor analysis can be considered as the reason for this situation. However, it is important not to be satisfied with factor analysis and to calculate item discrimination in order to provide more evidence about the validity of the items. In the study, coding was done by a single researcher. Although the researcher performed the coding twice in different time intervals for reliability, the fact that the coding was done by a single researcher can be seen as a limitation of this research. In this sense, the codings should be done at least by two researchers for supporting the reliability of the results in such studies with two or more authors.

### Declaration of Conflicting Interests and Ethics

The authors declare no conflict of interest This research study complies with research publishing ethics The scientific and legal responsibility for manuscripts published in IJATE belongs to the authors

### Authorship Contribution Statement

**Melehat Gezer:** Investigation, Resources, Visualization, Formal Analysis, Writing original draft, Methodology, and Validation.

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## APPENDIX

### Appendix-1: List of studies included in the research

1. Acun, İ., Demir, M., & Göz, N.L. (2010). Öğretmen adaylarının vatandaşlık yeterlilikleri ile eleştirel düşünme becerileri arasındaki ilişki [The relationship between student teachers' citizenship skills and critical thinking skills]. *Journal of Social Studies Education Research*, 1(1), 107–123. Retrieved from <https://jsserorg/index.php/jsser/article/view/119>
2. Akın, A., Sarıçam, H., Akın, Ü., Yıldız, B., Demir, T., & Kaya, M. (2014, April 28-30). *The validity and reliability of the Turkish version of the global citizenship scale* [Conference Presentation Abstract]. III International Social Studies Education Symposium (Isses III 2014), Ankara, Turkey.
3. Altıntaş, İ.N. (2016). *Sosyal bilgiler öğretmen adaylarının aktif vatandaşlık kazanımları: eylem araştırması* [Active citizenship goals of social studies teacher candidates: Action research] [Doctoral thesis]. Gazi University.
4. Altıok, A. (2019). *Sosyal bilgilerde hizmet ederek öğrenmenin öğrencilerin iyi vatandaşlık algı, bilgi ve tutumlarına etkisi ve öğretmen görüşleri* [The effect of the service-learning in social studies to the students' perception of good citizenship, their knowledge and attitudes and teachers' views] [Doctoral thesis]. Gazi University.
5. Arslan, H., Dil, K., Çetin, E., & Yazıcı, S. (2017). Aktif yurttaşlık öz-yeterlik ölçeği: Bir geçerlik ve güvenilirlik çalışması [Active citizenship self-efficacy scale: A reliability and validity study]. *Journal of Human Sciences*, 14(3), 2797-2809. <http://dxdoiorg/1014687/jhsv14i34771>
6. Arslan, S. (2014). *Çokkültürlü toplumlarda vatandaşlık eğitime yönelik öğretmen ve öğrenci düşüncelerinin incelenmesi* [Examination of teacher and student opinions on citizenship education in multicultural societies] [Doctoral thesis]. Marmara University.
7. Balbağ, N.L. (2016). *İlkokul sosyal bilgiler dersi bağlamında öğrenci ve öğretmenlerin küresel vatandaşlık algıları* [Elementary teachers' and students' perceptions of global citizenship in the social studies course] [Doctoral thesis]. Anadolu University.
8. Baştürk, N. (2011). *İlköğretim 8 sınıf vatandaşlık ve demokrasi eğitimi dersi öğretim programı kazanımlarının öğrenci görüşlerine göre değerlendirilmesi (Konya ili örneği)* [Evaluation of the elementary 8th grade citizenship and democracy education course learning outcomes according to student views (Case of Konya)] [Doctoral thesis]. Atatürk University.
9. Bozbek, M., & Demir, S.B. (2014). Vatandaşlık ve demokrasi eğitimi dersine yönelik tutum ölçeği; Geçerlik ve güvenilirlik çalışması [Attitude scale towards citizenship and democracy education lesson: Development, validity and reliability study]. *Dicle University Journal of Ziya Gökalp Education Faculty*, 23, 323–351.
10. Çevik Kansu, C. (2014). *İlkokul 4 sınıf öğrencilerinde etkin vatandaşlık eğitiminin etkililiği* [Efficiency of Active Citizenship Education on 4th Grade of Primary Students] [Doctoral thesis]. Ondokuz Mayıs University.
11. Çiçek, S. (2018). *Sosyal bilgiler öğretmen adaylarının iyi vatandaşlık algılarının incelenmesi* [Examining the perceptions of the social studies teacher candidates towards good citizenship] [Master's thesis]. Akdeniz University.
12. Demirbaş, İ. (2016). *Üniversite öğrencilerinin vatandaşlık algısının belirlenmesi* [The determination of the university students' citizenship perception] [Master's thesis]. Kastamonu University.
13. Doğanay, A. (2009, May 28–30). *Evaluation of pre-service teachers' perception of citizenship and their actions in the context of political socialization* [Conference Presentation Abstract]. 1st International European Union, Democracy, Citizenship and Citizenship Education Symposium, Uşak, Turkey.

14. Durualp, E. (2016). Ortaokul öğrencilerinin vatandaşlık algılarının bazı sosyolojik değişkenler açısından incelenmesi [*Investigation of citizenship perception of middle school students from the point of some sociological variables*] [Doctoral thesis]. Ankara University.
15. Elçi, A.C., & Sarı, M. (2016). Bilişim Teknolojileri ve Yazılım dersinde dijital vatandaşlık Bir ölçek geliştirme çalışması [Digital citizenship in the Information Technology and Software course: A scale development study]. *Journal of Human Sciences*, 13(2), 3602–3613. <http://dxdoiorg/1014687/jhsv13i23838>
16. Erdem, C., & Koçyiğit, M. (2019, April 25–28). *Adapting the digital citizenship scale to Turkish: validity and reliability study* [Conference presentation abstract]. 28th International Conference on Educational Sciences (ICES 2019), Ankara, Turkey.
17. Göl, E. (2013). *Sosyal bilgiler öğretmen adaylarının küresel vatandaşlık tutum düzeylerinin farklı değişkenler açısından incelenmesi* [The examination of global citizenship attitude levels of social studies nominee instructors according to different variants] [Master's thesis]. Ahi Evran University.
18. Gürbüz, G. (2006). *İlköğretim 7 ve 8 sınıflarda vatandaşlık bilgisi dersinde demokrasi eğitimi* [Democracy education of elementary school at 7th and 8th classes at citizenship lesson] [Doctoral thesis]. Abant İzzet Baysal University.
19. İcen, M., Öztürk, C., & Yılmaz, A. (2017). Vatandaşlık duygusu ölçeği güvenilirlik ve geçerlik çalışması [Validity and reliability of the sense of citizenship scale]. *International Journal of Field Education*, 3(2), 26–36. <https://doiorg/1032570/ijofe370382>
20. İkinci, İ. (2016). *Sosyal bilgiler öğretmenlerinin vatandaşlık algıları ve vatandaşlık eğitimi ile ilgili düşüncelerinin incelenmesi* [Investigation of social studies teachers' perceptions of citizenship and citizenship education] [Doctoral thesis]. Dumlupınar University.
21. İşman, A., & Güngören, Ö.C. (2014). Dijital Vatandaşlık [Digital citizenship]. *TOJET: The Turkish Online Journal of Educational Technology*, 13(1), 73–77.
22. Karaduman, H. (2011). *6 sınıf sosyal bilgiler dersinde dijital vatandaşlığa dayalı etkinliklerin öğrencilerin dijital ortamdaki tutumlarına etkisi ve öğrenme öğretme sürecine yansımaları* [The effects of digital citizenship based activities on students' attitudes in digital environments and reflections to learning teaching process in the 6th grade social studies course] [Doctoral thesis]. Marmara University.
23. Karatekin, K., & Uysal, C. (2018). Ekolojik vatandaşlık ölçeği geliştirme çalışması [Ecological citizenship scale development study]. *International Electronic Journal of Environmental Education*, 8(2), 82–104.
24. Karışan, D., & Yılmaz Tüzün, Ö. (2017). Dünya vatandaşlığı için karakter ve değerler ölçeğinin Türkçe'ye uyarlanması: Geçerlik ve güvenilirlik çalışması [Adaptation of character and values as global citizen assessment questionnaire into Turkish: Validity and reliability study]. *Pamukkale University Journal of Education*, 42, 74-85. <http://dxdoiorg/109779/PUJE823>
25. Kaya, B. (2013). *Sosyal bilgiler öğretmen adaylarının vatandaşlık algıları ile politik ilgi ve katılımları arasındaki ilişkinin incelenmesi* [Examining the relationship between citizenship perceptions of social studies teacher candidates and their political interests and participation] [Doctoral thesis]. Marmara University.
26. Kaya, B., & Ersoy, A. F. (2014). Vatandaşlık ve demokrasi eğitimi dersinin sekizinci sınıf öğrencilerinde vatandaşlık algısının oluşmasıyla ilişkisi [The effect of citizenship and democracy on eight class students growing as a conscious citizen]. *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi*, 23, 252–303.
27. Kılınç, E., & Dere, İ. (2013). Lise öğrencilerinin 'iyi vatandaş' kavramı hakkındaki görüşleri [High school students' perception of the concept of 'good citizen']. *Journal of Social Studies Education Research*, 4(2), 103–124.

28. Kılınç, H.H. (2013). *8 sınıf vatandaşlık ve demokrasi eğitimi dersi kazanımlarının gerçekleştirilme düzeyine ilişkin öğretmen-öğrenci görüşleri ile derse yönelik öğrenci tutumları [Teachers' and students' perceptions of realization level of 8th grade citizenship and democracy education course learning attainments and students' attitudes towards the course]* [Doctoral thesis]. Fırat University.
29. Kocadağ, T. (2012). *Öğretmen adaylarının dijital vatandaşlık düzeylerinin belirlenmesi [Determining the digital citizenship levels of prospective teachers]* [Master's thesis]. Karadeniz Teknik University.
30. Kuş, Z., Güneş, E., Başarmak, U. & Yakar, H. (2017). Gençlere yönelik dijital vatandaşlık ölçeğinin geliştirilmesi: Geçerlik ve güvenilirlik çalışması [Development of a digital citizenship scale for youth: A validity and reliability study]. *Journal of Computer and Education Research*, 5(10), 298–316. <https://doi.org/1018009/jcer335806>
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**Appendix-2: *The checklist used in the study***

	No	.....
	Title	.....
Marking tag	Type	1) Conference presentation 2) Article 3) Thesis (Master thesis) 4) Thesis (Doctoral thesis)
	Authors	.....
	Journal/University	.....
	Year of publication	.....
	Key words	.....
	The subject matter of the scale	.....
	Scale development/adaptation	1) Scale development 2) Scale adaptation
	Types of sampling	1) Primary school 2) Secondary school 3) High school 4) University 5) Prospective teachers 6) Teachers of social studies
	Sample size	1) 100–200 2) 201–300 3) 301–400 4) 401–500 5) 501–600 6) 601–700 7) 701–800 8) 801–900 9) 901–1000 10) 1001–2000 11) 2000 and later
Theoretical knowledge	Validity evidence	1) Construct validity a Factor analysis a1 Only confirmatory factor analysis (CFA) a2 Only exploratory factor analysis (EFA) a3 Both CFA and EFA b Convergent-divergent validity c Known groups validity d Criterion-related validity e Measurement invariance (multi-group CFA) 2) Content validity a Expert opinion b Content validity rate index 3) Unreported
	Item analysis	1) Lower-upper group -comparison 2) Item-test correlations
	Reliability evidence	1) Cronbach’s Alpha 2) Test-retest method 3) Parallel forms method 4) Split half reliability (Spearman Brown and Guttman) 5) Unreported
	Number of factors	.....