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Validation of Adolescent Civic Engagement Scale in the Ethiopian Context

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Abstract

The objective of this paper was to validate an adolescent civic engagement measure in the Ethiopian context. The civic engagement measure had two sub-scales with a total number of 15 items: Adolescents' Involvement in Community Services and Informal Helping. Participants were 960 adolescents aged 15 to 19 years (Mean=17.7, 53.5% female). Experts evaluation of items in the scale confirmed the content validity in assessing the construct. Experts evaluation of items in the scale confirmed the content validity. Exploratory Factor Analysis (EFA) was conducted to examine the factor structures and Confirmatory Factor Analysis (CFA) to confirm the proposed factors. The exploratory factor analysis resulted in three interpretable factors: adolescents' involvement in community services, informal helping at school and informal helping at neighborhood, with acceptable factor loading of items to each factor. The Civic Engagement Scale and sub-scales have high reliability suggesting the ecological validity of the measure in the Ethiopian cultural context. Although the results of the EFA shows three factor structures, informal helping at school and neighborhood, and Community Services have high correlation indicating the factors measure the same construct. Norming of the scale for adolescents with adolescents with high medium and low civic engagements is established. Implications for future research are drawn.

Keywords: Civic Engagement Measure, Adolescents

I. INTRODUCTION

Civic engagement has emerged over the past two decades as a substantive subfield within developmental science (Hart & Kirshner, 2009; Youniss, 2009; Zaff et al., 2010). According to Flanagan and Christens (2011), the development of civic engagement is understood as one dimension of human development and the context for adolescent development increasingly recognize the importance of the civic domain. The multidisciplinary growth of civic engagement has resulted in a wide variety of understandings of the nature of adolescent civic engagement, including participation in formal civic organizations, volunteering, and future voting (Eckstein et al., 2012; Horn, 2012).

Studies in the field have used different theoretical constructs to define aspects of civic engagement, including civic knowledge, civic responsibility, civic beliefs, civic attitudes, civic identity, and civic participation, considering them in some cases as components of the multidimensional construct of civic engagement (Amnå, 2012; Bobek, Zaff, Li, & Lerner, 2009; Sherrod & Lauckhardt, 2009).

In previous studies, civic engagement was considered as a multidimensional construct and the components were measured separately. In measuring adolescents' civic behavior, Metzger, Ferris, and Oosterhoff (2019) assessed engagement in community services, political activities, and social movement involvement. Taylor, et al. (2019) measured volunteerism and political forms of participation as components of adolescent civic engagement. Wray-Lake, Metzger and Syvertsen (2017) affirmed civic engagement as a multidimensional construct.

They measured Informal helping, volunteering, voting intentions, and news consumption as components of civic engagement. In assessing the role of Facebook in fostering adolescent civic engagement, Lenzi et al. (2015) used competence for civic actions and future intentions for civic engagement as components. However, competence for civic actions and future intentions to engage in different social and political activities do not represent adolescents' current civic behaviors. Further Wilkenfeld (2009) measured civic knowledge, civic attitude (support for the rights of minorities), and behavior (voting and participating in community activities) as components of civic engagement.

Flanagan, Syvertsen, and Stout (2007) developed a set of civic measures with good psychometric properties that are appropriate for use with young people ages 12-18. These measures tap aspects of adolescents civic behaviors, opinions, knowledge, and dispositions. These measures are easy to administer and can be used by educators, staff of community-based organizations, program evaluators, and scholars. The data used to derive the civic measures were gathered from two waves of surveys with 1,924 students ages 12-18 from 88 social studies classes in the Northeastern United States.

Civic participation, or civic behavior, is often what most researchers are interested in because it is the most obvious civic outcome (or indicator) for an active citizen. The reported civic actions (behavioral) is often what most researchers are interested in because it is the most obvious civic outcome (or indicator) for an active citizen. Civic engagement refers to formal and informal involvement in civic institutions including engagement in voluntary community services, informal helping behavior, civic activism, participation in civic associations, consuming civic and political information, and political socialization (Wilkenfeld, 2009; Karakos, 2015). In this study, civic engagement is considered as a multidimensional construct having two underlying dimensions: engagement in community services and informal helping activities. It is considered as civic actions (behaviors) that adolescents have been engaged (both the past or current).

Most of the previous research (Lenzi et al., 2012; Manganelli, Lucidi, & Alivernini, 2014; Rossi et al., 2016; Wray-Lake, et al., 2017) used self-reported questionnaire to measure adolescent civic engagement. Research on adolescent civic engagement used samples from different age groups. For example, studying the context effects of adolescent civic engagement, Wilkenfeld (2009) used samples of 14-year-olds. Likewise, other researchers (Manganelli, et al., 2014; Schulz, et al., 2010; Schulz et al., 2016) used large samples from eighth grade students from different countries. The use of large samples helps to make generalizations of the findings to the general population and the cross cultural data helped cross cultural comparisons of adolescents' civic engagement. Other research (Folgueiras, Vila & Aneas, 2019; Lenzi, et al., 2012) used adolescents of 15 years old as target population and used adolescents' reports of civic engagement. Very few studies used adolescents from different age groups across different grade levels. For example, Rossi, et al. (2016) used 403 randomly selected adolescents whose age ranges from 11- to- 15 years old in Italy. Zaff, et al. (2011) explored whether adolescent/youth development program participation is related to civic engagement from the 8th through the 11th grades. Wray-Lake, Rote, Victorino, & Benavides (2014) measured civic engagement in five annual fall surveys from 8th to 12th grade. Wray-Lake, Metzger, & Syvertsen (2017) used adolescents from elementary, middle, and high school-aged 8-20 years old. Cicognani, et al. (2012) used adolescents whose age range from 15 to 19 years as target population.

Although civic engagement is not well investigated in Ethiopia, adolescents and youth are involved in different civic activities. Adolescents are engaged in volunteering during religious festivals or worship, community outreach services, student traffic, and school gardening; participate in the district and city children's parliaments and youth-led groups. They are involved in informal helping such as tutorial support, mobilizing resources and

supporting orphans, and in doing chores in their neighborhoods and community (MoWCY, 2018). Further, adolescents organized in adolescent/youth-led parliaments promote awareness on their rights, identify adolescents who experience violence, deprived of access to social services and report to local government offices to take appropriate actions (MoWCY, 2020). Moreover, youths are organized under national, regional, and city level youth associations with over 8.3 million youth members all over the country. Members of the youth clubs and associations participate in social and political issues such as community based discussions on local security issues, budget approval and review, and monitoring delivery of social services (Singh et al., 2016). Adolescents and youth as members of the school or district/city parliaments mobilize resources from their school and families and provide support to orphans and vulnerable children, and making them feel important and develop a sense that others are concerned about them (MoLSA, 2017).

With the increased adolescents and youth civic engagement in Ethiopia, there is no contextualized measure to examine adolescent civic engagement. Thus, there is a need to validate the civic engagement measure to our own context to ensure measures could fairly be used to assess civic engagements of adolescents in Ethiopia.

Objectives of the Instrument Validation

The main objective of this study was to validate the civic engagement measure for adolescents in the Ethiopian socio-cultural context. The instrument validation has three specific objectives. (a) to explore the factor structures (components) or underlying dimensions of the Civic Engagement Measure for adolescents; (b) to confirm the factor structures of civic engagement measure identified through Exploratory Factor Analysis; (c) to determine the internal consistency of items measuring adolescent civic engagement.

II. METHOD

Design of the Study

Correlation matrix approach was employed to determine the components of the civic engagement measure for adolescents. In addition, the researcher employed a descriptive design to investigate the psychometric characteristics of the instrument administered to the samples.

Civic engagements measures

Civic engagement refers to the behavioral aspect of civic engagements (reported civic actions) as measured by the existing sources and adapted scale: *Adolescents' Involvement in Community Services and Informal Helping* (Kahne et al., 2005; Wray-Lake, Metzger, & Syvertsen, 2017; Zaff et al., 2010).

Engagement in community services. it is a 9 item scale measuring adolescents' engagement in community services in their families, neighborhoods, schools, and religious institutions either individually and by joining different clubs and associations. The sub-scale had internal consistency of Cronbach's alpha of .77. The items were adapted from Zaff, Boyd, Li, Lerner, & Lerner, 2010). It asks adolescents how often they participate in volunteering their time (0=Never, 1=Rarely, 2=Sometimes, 3=Mostly, 4=Always

Informal helping behavior. A 6 item scale drawn from Wray-Lake et al. (2017) assessing the frequency of everyday forms of helping such as standing up for a classmate, helping a classmate with homework, doing household chores, sharing school supplies with peers; and helping a neighbor with projects for no pay. Each item has five responses (0=Never, 1=Rarely, 2=Sometimes, 3=Mostly, 4=Always) were used to assess adolescents' informal helping behavior. The scale has internal consistency of Cronbach's alpha of 0.71.

Participants and sampling

Participants were 960 urban adolescent students (53.5% female and 46.5% male, Mean age=17.7, ages 15-19 years), who were attending in three secondary schools in Addis Ababa. Of the 6 secondary schools with total student population of 11, 300 (5, 198 males), three schools were

selected using simple random sampling. Then, using convenient sampling, 18 sections, each section having 50-60 students, a total of 960 students filled the civic engagement questionnaire correctly. Inclusion criteria include**:** adolescents (males and females) whose age ranges from 15-19 years; students with no severe disability or limited Amharic proficiency; and students who were willing to spend two hours to fill survey questionnaire.

Administration Procedure

First, the research project was approved by the Addis Ababa University, School of Psychology and secured support letter. Then, the researcher contacted Gulele Sub-City Education Department, Women, Children and Youth, and the respective Woreda Education and Women, Children, and Youth Affairs Offices. With the support of the respective Woreda Education and Women, Children and Youth Affairs Offices, the researcher contacted the respective school directors and got the necessary support to collect primary data from students. Once, I secured permission from the school directors, the researcher made sure that the data collection should not conflict with the students' class schedule.

In consultation with the school director, free rooms, tables, chairs, and pens were availed to students to fill the questionnaire in the respective schools. The participants completed the questionnaire which was prepared in Amharic language. During the administration of the instruments, participants were briefed about the purpose of the research and the confidentiality of the information they provide. Participants were given briefing to enable them fill out the questionnaire as per the instructions. All students from the three schools completed the questionnaire in the same day. It took an estimated of two hours for a student to complete the questionnaire. Finally, the researcher and assistant researchers appreciated and thanked students for their willingness to fill the questionnaire.

Instrument Adaptation Procedure

Instrument adaption involved two major steps: pre-pilot test and pilot study.

Pre-pilot test to check the content validity of items

During pre-piloting phase, content validity of the items was checked by Applied Developmental Psychologists (experts' judgment) to check if the items fairly and comprehensively cover the variables/domains that they purport to cover. It also helps to check the representativeness and relevance of the items. Content Validity Index (CVI) of items was computed to assess the validity of each item using Lawshe's content validity assessment method (Lawshe, 1975). Members of the content evaluation panels of experts were eight professionals with Masters in Psychology who have ample experience in teaching, conducting research, and development of instruments. Eight panel of experts were contacted orally and secured their willingness to participate in evaluating the continent validity. Each member of the panel was given the student questionnaire.

The content validity assessment sheet includes: general overview on the purpose of the questionnaire (to validate and/or adapt a bunch of instruments), task instructions, demographic information, definitions and clarification about the construct and the scales/sub-scales. Accordingly, eight panel of experts reviewed the instrument and scored each item. Independent of the other panelists, each panelist was asked to respond to each item. How essential is the item to measure the construct? For each item, experts assessed the relevance of each item in a three-point scale: 3= the item is Essential; 2=the item is Useful, but not essential; 1= the item is Non-essential. Based on the quantitative data obtained from panel of experts, a Content Validity Ratio (CVR) was computed for each item. Accordingly, items with CVR of 0.75 and above were retained and two items with CVR value of below .75 would be deleted. Qualitative feedback was also sought from the panel of experts. Key questions asked include, 'Does the item measure the construct? If no, how can this be improved to fit for Ethiopian participants?'.

The panel of experts provided qualitative feedback suggesting for improvement of the items, deletion of some items, and suggested additional items. The findings from this process was expected to increase the content validity, construct validity, and reliability of the instrument.

The translation of the instrument followed the following steps. 1) the revised instrument was translated into Amharic language (forward translation) by professional translator. In the translation process, semantics (implied meaning), context, and technical aspects were checked. 2) forward translation reconciliation, whereby the forward translations are compared and merged into one by the forward translators; 3) The Amharic version of the instrument was back-translated and checked for its congruence with the original English version. 4) back-translation review, performed by an Applied Developmental Psychologist compared the back translations with the original text, identified discrepancies and discussed with the translators if any changes needed to be made. The translated instruments were further improved based on the feedback before administered for the pilot study. Some of the feedbacks given include: ensuring conceptual equivalence of words or phrases, making translation simple and clear, avoiding long phrases, and using language understood by the most common audience.

Pilot Study

The instruments were administered with 960 adolescent students ages 15-19 attending secondary schools in Gulele Sub-City. Those adolescents who participated in the pilot study will not participate in the main study.

Data Analysis

The data were analysed by Statistical Package for Social Sciences (SPSS) version 24 and Amos 26. Two basic forms of factor analysis (exploratory and confirmatory) were conducted. Exploratory Factor Analysis (EFA was conducted to explore the existence of the factor structures for civic engagement measures. Exploratory Factor Analysis with Varimax Rotation[1]was used to extract the factor solutions. Its ultimate goal was to come up with a pattern matrix where acceptable values of KMO, factor loadings, and factor correlation matrix, etc. are satisfied. Varmax Rotation with Kaisar Normalization, and Maximum Likelihood Estimation (MLE) and an absolute value of the standardized factor loading of greater than 0.4 was set to run the analysis. Maximum Likelihood Estimation helps to estimate parameters for a model and specify explicitly of the expected relations between the factors and the endogenous variables. Varimax rotation as a statistical technique in the factor analysis helped to clarify the relationship among factors, simplifies the loadings of items by removing the middle ground and more specifically identifying the factor upon which data load.

Confirmatory Factor Analysis (CFA) was conducted in order to confirm the factors identified through the Exploratory Factor Analysis. CFA confirmed the internal cohesiveness and structure of the instruments and provided evidence that the measures have construct validity. Further, it tested the hypothesized measurement model and confirm the generalizability of the model-structural equation modeling for the main study.

Four model fit indices were used to test the general model adjustment. In order to assess fitness of the model to the data, most researchers recommend the five Model indices namely Model Chi-Square (CMIN), The (Adjusted) Goodness of Fit (AGFI), Goodness of Fit Index (GFI), Comparative Fit Index (CFI), and The Root Mean Square Error of Approximation-RMSEA (Byrne, 2010). CMIN/DF should be < 5, while AGFI, GFI, and CFI should be > .9 and RMSEA should be < .08 (Bryne, 2010). According to Hair et al., (2010), if any 3-4 of the

[1]**Varimax Rotation** is a statistical technique used at one level of exploratory factor analysis as an attempt to clarify the relationship among factors by adjusting the coordinates of data.

Goodness-of-Fit indices are within the threshold, then fitness of the entire model is regarded as acceptable.

To check the reliability (internal consistency) of items in the sub-scales/scales was checked by computing a reliability analysis of items using Cronbach alpha. Based on the results of pilot study, irrelevant items were removed. Whether the removal of some items increases the reliability of items was checked.

III.RESULTS

This section presents the demographic characteristics of the research participants, results of the content validity of items measuring the civic engagement construct (latent variable) explored in the pre-piloting, results from Exploratory Factor Analysis and Confirmatory Factor Analysis, summary of the exploratory factor analysis, reliability of the scales and subscales.

Socio-demographic characteristics

A total of 960 adolescents (514 males and 446 females) correctly completed the student questionnaire. Their age ranges from 15-19 years attending grades 9-12 in government schools. Significant proportion of the respondents (40.7%) were 18 years old, 22.8% were aged 19 years old, 21% of the respondents were17 years, and 14.6% of them were 16 years old. Only .8% of the respondents were aged 15 years old. As to their grade level, a significant proportion (42%) were in grade 12, 27.4% in grade 11, 19.5% in grade 9 and 11% in grade 10.

More than half of the respondents (57.2%) stated that they live with both biological parents, 28.8% reported that they live with one of their parents (15.2% with their mothers and 13.6% with their fathers), 6.7% live with their aunts/uncle, 5% with their grandparents, and 2.1% with siblings (either as a head of the family or member of the siblings). Only .1% each reported they live with others or their parents are not alive.

Results of the expert evaluation of the content validity of items

This section presents the results of experts assessment of items measuring the factors in the civic engagement construct. This essentially checked the content validity of the items in the civic engagement measures.

Table 1: Adolescents' Involvement in Community Services (CS)

S-CVI/Ave = (sum of proportion relevance rating)/ (number of exper

Item Description	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Rater 7	Rater 8	Number of Agreement	I-CVI	Interpretation
CS1	3	3	3	3	3	3	3	3		1	Appropriate
CS2	3	3	3	3	3	3	3	3		1	Appropriate
CS3	3	3	3	3	3	3	3	3		1	Appropriate
CS4	3	3	3	3	3	3	3	3		1	Appropriate
CS5	3	3	3	3	3	3	3	3		1	Appropriate
CS6	3	2	3	3	3	3	3	3		0.75	Appropriate
CS7	3	3	3	3	3	3	3	3		1	Appropriate
CS8	2	3	3	3	3	3	3	3		0.75	Appropriate
									8-CVI/Ave		
									Total Agreement		
									S-CVI/UA		

Table 2: Adolescents' Involvement in Informal Helping (IH)

Item Description	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Rater 7	Rater 8	Number of Agreement	I-CVI	Remark (interpretation)

IH1	3	3	3	3	3	3	3	3		1	Appropriate
IH2	3	3	3	3	3	3	3	3		1	Appropriate
IH3	3	3	3	3	3	3	3	3		1	Appropriate
IH4	3	3	3	3	3	3	3	3		1	Appropriate
IH5	3	3	3	3	3	3	3	3		1	Appropriate
IH6	3	3	3	3	3	3	3	3		1	Appropriate
									8-CVI/Ave		
									Total Agreement		
									S-CVI/UA		

As shown in Table 1 and 2 above the result of evaluation of items measuring civic engagement (adolescents' engagement in community service and informal services shows that Content Validity Ratio (CVR) for all items was above 0.75 and hence all items were retained. Qualitative feedback was also sought from the panel of experts. Expert 4 commented on the item 'Help make your city or town a better place for people to live' and modified to 'Help make my city a better place for people to live.' Item 6 which asks about tutoring was revised based on comment from expert 3 to: tutoring students in school. Item 9 asks about adolescents' engagement tin volunteering, while this item was repeated in item 1 as well. Based on comments from the expert 6, the item was deleted.

Assumptions of Exploratory Factor Analysis

Multivariate normality of data was examined for civic engagement scale before the data were processed. KMO and Bartlett's Test were also examined for the construct to check the measure of how suited the data were for Factor Analysis. The test measures sampling adequacy for each variable in the model and for the complete model. KMO returns values between 0 and 1 for all the constructs measured. A rule of thumb for interpreting the statistic: KMO values between 0.8 and 1 indicate the sampling is adequate. A minimum acceptable score for this test is 0.5 (Kaiser, 1974). The KMO results for the items factor analyzed show a sampling adequacy was reached with significant level. Accordingly, KMO results for civic engagement measure was .884. Further, Homoscedasticity Plot: was checked using a scatter plot and the result shows that the amount of distance from the line to the dot did not marginally increase at it moves up the line (Hair, et al., 2010). This suggests that the data are homoscedastic. It also means the average distribution of scores of the independent, mediating and dependent variables in the different scales is approximately normal.

Results from Exploratory Factor Analysis of the Civic Engagement Scale (CE)

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.884
Bartlett's Test of Sphericity	Approx. Chi-Square	9229.612
	Df	91
	Sig.	.000

The result of KMO and Bartlett's Test was found to be .884 which shows that sampling adequacy has reached significant level

The following table depicts the result of exploratory factor analysis showing extracted factor structures.

Table 2: Results from exploratory factor analysis of civic engagement scale

Items	Factor 1: Community Service	Factor 2: Informal Helping at Neighborhood	Factor 3: Informal Helping at School
Community Service (CS) 1	.916		
Community Service (CS) 2	.885		
Community Service (CS) 3	.733		
Community Service (CS) 4	.806		
Service (CS) 5	.904		
Community Service (CS) 6	.853		
Community Service (CS) 7	.822		
Service (CS) 8	.867		
Community Informal Helping (IH-CS) 1[2]		.864	
Informal Helping (IH) 2		.931	
Informal Informal Helping (IH) 3		.585	
Informal Helping (IH) 1			.552
Informal Helping (IH) 2			.574
Informal Helping (IH) 3			.535
Informal Helping (IH)4			.549

The original Civic Engagement Scale has two components-adolescents' engagement in Community Services and Informal Helping. The Exploratory Factor Analysis resulted in three interpretable factor structures. The Informal Helping component of the Civic Engagement construct was split to two factors. Thus, additional factors are created from the original factor (Informal helping). The items were thematically synthesized and named to represent the factors. The two factors were named based on the items measuring adolescents' engagement in informal helping activities in two contexts: Informal Helping at neighborhood and Informal Helping at School. Factor 1-engagement in community services has seven items with factor loading from .733 to .916. 83.9% of the variance in item 1, 75.67% of the variance in item 2, 53.73% of the variance in item 3, 64.96% of the variance in item 4, 81.72 of the variance in item

[2] One of the items initially measuring adolescents engagement in community services is loaded to the second factor (Informal Helping).

5, 72.76% of the variance in item 6, 67.57% of the variance in item 7, 75.12 of the variance in item 8 is explained by the adolescents' involvement in community service factor. On average, 84.83% of the variance in the seven items is explained by the first factor.

Factor 2-Informal Helping at Neighborhood has three items with factor loadings .585 to .931; and Factor 3-Informal Helping at School with factor value of loadings from .535 to .574. Accordingly, 74.6% of the variance in item 1, 86.7% of the variance in item 2, 34.2% of the variance in item 3 is explained by the second factor (Informal Helping at neighborhood). On average, 79.3% of the variance in the three items is explained by the first factor. Further, 30.47 of the variance in item 1, 32.95% of the variance in item 2, 28.63% of the variance in item 3, 30.14% of the variance in item 4, is explained by the third factor (Informal Helping at School factor). On average, 55.25% of the variance in the four items is explained by the third factor. All the items were loaded to the identified thee factor structures.

Table 5: Total Variance Explained: extracted factors

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Factors	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.59	39.92	39.92	2.75	19.63	19.63	5.15	36.78	36.78
2	2.89	20.68	60.60	4.93	35.19	54.82	1.87	13.35	50.13
3	1.09	7.76	68.36	.799	5.70	60.53	1.46	10.40	60.53

Table 5 above indicates the total variance explained by the three factors before and after rotation. After rotation, the first factor contributed 36.78%, the second factor 50.13, and the third factor 60.53. Overall, the three extracted factors explained 60.53% of the total variance in the adolescent civic engagement measure/scale.

Results of Confirmatory Factor Analysis (CFA)

Once the factor structures were determined using exploratory factor analysis, a confirmatory factor analysis was conducted to test how well the measured variables signify the constructs and confirm the results of the EFA.

The result of the EFA indicated three interpretable factors. These factors were further confirmed by confirmatory factor analysis (CFA). The CFA model for civic engagement construct was made of fourteen items. The result of CFA shows that the $\chi 2$ (CMIN) value was 382.466, df=74, p-value=.000, GFI=.944, AGFI=.921, CFI=.966 and RMSEA=.066. All the fit indices were found to be acceptable and model modification was not needed.

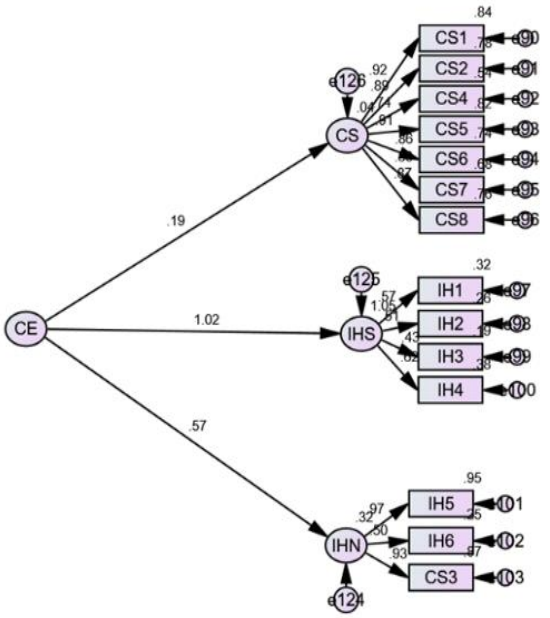

Figure 1: Structural model for civic engagement construct

Reliability of the four sub-scales

A reliability measure to check the internal consistency of items for each sub-scale as well as for all refined items is presented in the following table.

Table 6. Reliability Measures of the Civic Engagement Scale for Adolescents (N=960)

Factors/Subscale	Number of Items	α
Involvement in Community Services	8	.95
Involvement in Informal Helping at School	4	.82
Involvement Informal Helping at Neighbourhoods	3	.83
Total refined items	15	.84

The reliability measure shows the internal consistency of items within each factor or sub-scale as well as for all refined items in the civic engagement scale. The subscale measuring adolescents' involvement in community services consisted of 8 items with excellent internal consistency (α=.95), involvement in informal helping at School consisted of 4 items (α=.82), and involvement in informal helping at neighborhoods has 3 items with good level of internal consistency (α =.83). Overall, the reliability measure (internal constancy) of the 15 refined items was found to be good (α=.84), which indicates a high level of internal consistency of the scale within this specific sample.

Inter-correlation of the two factor/sub-scales

Once the reliability of refined items for each sub-scale was computed, inter-correlation of sub-scales was calculated, and its statistical significance was checked. Although the result of the exploratory factor analysis revealed informal helping having two factors (informal helping at school and at neighborhood), items measures adolescents' involvement in informal helping activities. The two factors has extremely high correlation (r=.96) and hence it is feasible to consider the two factors as one.

Table 7. Sub-scale inter-correlation (Pearson Correlation)

		Involvement in Community Services	Informal Helping
Involvement in Community Service	Correlation Coefficient	1.0	.88**
Informal Helping	Correlation Coefficient	.88**	1.0

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

As depicted in Table 7, inter-correlation of the two sub-scales. Accordingly, the correlation between Involvement in Community Services and Informal Helping was found to be high (r=.88) and statistically significant at 0.01 level. The fact that the inter-correlation among the two sub-scales is high and significant implies that the identified factors measure the same construct i.e. adolescent civic engagement.

Table 8. Summary of results of Exploratory Factor Analysis (N=960)

Factors	Construct/Items	*M*	*SD*	Loadings	α
Factor 1: Involvement in Community Services	Help make my city a better	2.95	.79	.916	.95
	Help out at in places of worship.	2.98	.81	.885	
	Volunteering	3.04	.93	.733	
	Mentoring and peer advising	2.95	.82	.806	
	Help out at school	2.89	.84	.904	
	Tutoring students in schools	2.92	.83	.853	
	Participate as an active member or a leader of a group	2.92	.85	.822	
	Report social problems to local government officials.	2.89	.85	.867	

Factor 2: Informal Helping at School	Stood up for a classmate who was being picked on.	2.53	1.05	.552	.82
	Helped a classmate with homework.				
	Helped out around the school by doing chores.	2.74	.90	.574	
	Shared school supplies with a fellow students.	2.73	.94	.535	
		3.02	.84	.549	
Factor 3: Informal Helping at Neighborhood	I have helped my neighbors with projects for no pay.	2.99	.95	.864	.83
	I have helped baby sit kids in my family and neighborhood for no pay.	2.96	.99	.931	
	Help a neighbor with financial contribution.	2.99	.95	.585	

Three factor structures were created and a total of 15 items fall in the three factors namely adolescents' involvement in community services, involvement in informal helping at school, and informal helping at neighborhood. Eight items measure adolescents' involvement in community services, four items measure informal helping at school and three items measure informal helping at neighborhood.

The mean of the items for factor one ranges from 2.89-3.04 with a difference of.15 Their standard deviation ranges from .79 to .93, with small difference of 0.04. Factor loading for eight items in the first factor is high (ranges from .806-.916 with a difference .11). The reliability measure of the eight items shows very high internal consistency (α=.95).

The second factor (Informal Helping at School) has four refined items. The mean of the items ranged from 2.53-3.02 with mean difference of 0.49. The standard deviation for the items ranges from .84 to 1.05, with slight difference of 0.21. Factor loading for the items ranges from .535-.574, with differences of .039. The reliability measure of the four items shows good level of internal consistency (α=.82).

The third factor (Informal Helping at Neighborhood) has three items. The three items has more or less the same means (two items each with a mean of 2.99 and one item with mean 2.96) and a standard deviation ranging from .95-.99. Factor loading of the items ranges from .585-.931,with differences of .35. The reliability measure of the five items shows an acceptable level of internal consistency (α=.83).

Norming adolescent civic engagement measure

The sample is good enough to establish a norm for the adolescent civic engagement scale. Due to the lack of standard categorization of the level of civic engagement, adolescents were grouped into falling in the high, moderate and low levels of civic engagement based on their civic engagement scores. The maximum expected civic engagement score is 60. About 25.3% had civic engagement scores that fall on or below the cut off score for the 1st quartile (25th percentile), with cut of civic engagement score value of 35. The values that fall in the 2nd and 3rd quartiles were merged together and generated the most middle values. The civic engagement scores for adolescents with moderate levels ranges from 36-45. Accordingly, a significant proportion (47.8%) had civic engagement scores that fall in 2nd and 3rd quartiles (50th Percentile), considered to be moderate level of civic engagement. The scores for 26.9% fall in the fourth (upper quartile-75th percentile), with a cut of score 46. According to this classification (norming of the scale), adolescents with a civic engagement score of 35 and below are considered as bad performance, adolescents with total civic engagement scores from 36-45 are considered to be moderately performing, and adolescents with a total civic engagement score of 46 and above are highly performing.

IV. DISCUSSION

The objectives of the instrument adaptation study were; (a) to explore the factor structures (components) or underlying dimensions of the Civic Engagement Measure for adolescents; (b) to confirm the factor structures of civic

engagement measure identified through Exploratory Factor Analysis; (c) to determine the internal consistency of items measuring adolescent civic engagement.

The original adolescent civic engagement measure had two factors (subscales): *Involvement in Community Service and Informal Helping* (Kahne et al., 2005; Wray-Lake, Metzger, & Syvertsen, 2017; Zaff et al., 2010). In contrast to the original scale, the results of exploratory factor analysis resulted in a three factor solutions: *Involvement in Community Service, Informal Helping at School, Informal Helping at Neighborhood* with items leaded in each factor with acceptable factor loading. This was confirmed through the confirmatory factor analysis where all the indices were found to be acceptable and items leaded in their respective factors in the structure model.

Although the exploratory factor analysis resulted in informal helping split into two factors, they measure one construct i.e. adolescent' engagement in informal helping. The two factors has extremely high correlation (r=.96) indicating the sub-scales measure the same construct. Similarity, the result of inter-correlation of the two sub-scales: Involvement in Community Services and Informal Helping was found to be high (r=.88) and statistically significant at 0.01 level. This implies the two sub-scales measure the same construct i.e. adolescent civic engagement. Supporting this, Lyons-Thomas (2014) indicated that if the interscale correlation is too high, the indication is that there is excessive overlap between what the subscales are attempting to measure the same construct.

The Exploratory Factor Analysis conducted to check the contribution of the three factor structures in the Civic Engagement Scale for Adolescents resulted in 60.53% of the total variance in the civic engagement measure. As suggested by Hair et al. (2012), it is common to consider a solution that accounts for 60 percent of the total variance (and in some instances even less) as satisfactory.

The result of instrument validation showed that the Civic Engagement Scale has high reliability with a Cronbach alpha value of 0.84, suggesting the items have high internal consistency in the Ethiopian cultural context. The subscale measuring adolescents' involvement in community services had an excellent internal consistency (α=.95), involvement in informal helping at school consisted of four items with high internal consistency (α=.82), and involvement in informal helping at neighborhoods has three items with good level of internal consistency (α =.83). The result seems higher than what previous researchers found out; engagement in community service having Cronbach's alpha of .77 (Zaff, Boyd, Li, Lerner, & Lerner, 2010) and informal helping behavior with Cronbach's alpha of 0.71 (Wray-Lake et al., 2017). The fact that the instrument for the full scale shows high reliability implies an ecological validity of items in the Ethiopian context, and the functionality of items is very high in the Ethiopian context.

V. IMPLICATIONS

The civic engagement scale shows high reliability implies an ecological validity of items in the Ethiopian context, and the functionality of items is very high in the Ethiopian context.

The finding of the instrument validation shows that civic engagement measure is valid for Ethiopian adolescents. However, the measure was administered to urban adolescents. Future researchers can further validate the instrument to adolescents considering other adolescent variables such as rural and urban, adolescents with different socio-economic background and gender.

The result of inter-correlation of the two sub-scales: Involvement in Community Services and Informal Helping was found to be high (r=.88) and statistically significant at 0.01 level implies that two factors/sub-scales measure the same construct i.e. adolescent civic engagement. Thus, it is feasible to use a composite measure of civic engagement scale for adolescents.

Adolescents with low civic engagement scores (those below 35) are badly performing who need targeted intervention to address the civic engagement gap and enhance their civic engagement skills. This implies the potential of

strengthening the existing initiatives that can support adolescent students to enhance their civic participation. Interventions can be done in the family, school and community contexts.

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