Old but Gold: Secondary School Students' Communication Attitude Scale

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Abstract

Communication as a skill is not something new; however, it has become much more important than ever before as the way and with whom we communicate have changed. That is why educators need to have valid and reliable tools to understand how this skill is perceived by students. This study aims to provide a valid and reliable secondary school students' communication attitude scale (SSSCAS). A draft form for the scale was prepared with 32 items depending on the relevant literature and reviewed by experts in the field. The revised form was applied to 397 students at a state secondary school in Aksaray city of Turkey in the 2020-2021 academic year. First, explanatory factor analysis that tests construct validity was carried out and three items were extracted from further analysis due to insufficient factor loadings. The remaining 29 items are placed under four sub-dimensions called openness to communication, body language and preferences, self-confidence, and obstacles. The structure was tested through confirmatory factor analysis and the validity of the scale with the four sub-dimensions was found to be appropriate. The Cronbach's alpha values of all sub-dimensions and the scale were above the required level. As a result, the developed scale is a valid and reliable scale to assess communication attitudes of secondary school students.

Contents

Contribution of this paper to the literature
Communication skill is a must in all aspects of life. That is why educational institutions and educators need to pay special attention for developing this skill of their students. The development, however, starts by recognizing the status, and this requires valid and reliable measurement tools. This research provides educators that study with secondary school students with such a tool.

1. Introduction

Differing significantly from 20th century education in which tests measured students' fluency in abstract routine skills, the education in the 21st century should assess students' thinking and other skills when a standardized approach is not applicable (Dede, 2010). While definitions differ, numerous 21st-century abilities are required to take advantage of fast evolving technology through "soft skills" that computers cannot give, as well as creativity, which is essential for working and living in an increasingly complex, constantly changing global society (Walser, 2008). To survive in the 21st century, then, it is important to acquire these century-specific skills such as multiple literacy requirements and self-confidence outside of school, being able to work effectively across local and international borders, and being able to compete globally (Uche, Kaegon, & Okata, 2016). Although they are not new in nature and trend, 21st century skills are becoming increasingly important at the national and international policy level. 21st century skills include the general complex skills and associated knowledge and attitudes often required to live, work, and contribute to the current and future information society. These skills are required for any domain, profession, or type of job; they are important for all kinds of work, education, and life in general and can be applied in a wide variety of situations and subject areas (Rusman & Dirkx, 2017). So, "Critical thinking and problem solving" (sharing thoughts, questions, ideas, and solutions), "Effective Communication" (working together to achieve a goal – putting necessary effort, talent, expertise, and intelligence to work), "Collaboration" (looking at problems in different and original ways by bringing the information from various subjects and disciplines together), and "Creativity and Innovation" (trying new approaches to achieve meaningful and productive results) are all expected of today's students (Medeiros, Júnior, Bender, Menegussi, & Curcher, 2017). As a result, students should be encouraged and trained to share ideas (communicative) based on their activities; they should be trained to collaborate (collaborate) with other stakeholders through the exchange of knowledge and experience in doing or completing the work (Widiawati, Joyoatmojo, & Sudiyanto, 2018). If students do not have these skills, they will not be able to fulfill the requirements of the age of globalization and will have a hard time competing in the 21st century. As a result, they will not be able to achieve success in the future (Robi & Dafik, 2018).

Communication has always been a necessary skill in every aspect of life from business to family relations, but with the developments in the field of information, media and digital technologies brought by the current period, people from different cultures have begun to live and / or share at an unprecedented speed, compared to previous generations. As a result, it has become a more visible and vital skill for this generation (Piascik, 2015). While the emphasis was on correct pronunciation, fluency in reading and accuracy in writing in the industrialization era, graduates are expected to have deeper and broader communication skills with the advancement in information and communication technologies in the 21st century (Kivunja, 2015).

Long-standing interest in communication skill and communication competence is fueled by the fact that people differ in their social competence and the quality of one's communication performance has a significant impact on professional and personal success and satisfaction (Greene, 2021). The capacity to communicate clearly via spoken, written, and nonverbal language is referred to as communication, and the features of its abilities may be stated as follows: a) Effectively expressing thoughts and ideas in various forms and contexts through verbal, written, and nonverbal means, b) effectively deciphering meaning, including knowledge, values, perceptions, and motivations, c) using multiple media and technologies and understanding how to assess their effectiveness and impact, and d) communicating effectively in a variety of settings (including multilingual) (Handajani & Pratiwi, 2018). While verbal communication includes verbal and written communication, nonverbal communication includes visual and auditory elements such as appearance, tone, facial expression, gestures (Grace & Gilsdorf, 2004; Halimah & Sukmayadi, 2019).

Communication as a classroom skill, in the simplest way, is understood as students' learning how to express their thoughts and ideas by using different types of communication such as verbal, written or nonverbal for a wide variety of purposes in different teams and environments (Smit, 2015). A closer examination of these requirements clearly shows why communication skills take a place within the 4C's super skills, as it's difficult to think anyone being able to effectively work or live without using them in any form. Effective communication is efficiently transmitting the message you want to express to the others, which necessitates training and practice so that learners may develop the communication abilities they'll need in any part of their life and especially at work after graduation. As a result, graduates should be taught how to organize the communication and ensure that it is clear, succinct, concrete, consistent, accurate, comprehensive, and respectful (Kivunja, 2015). Individuals with superior communication abilities, for example, have more successful personal and professional life than those who do not, according to Goleman (2012) study on emotional intelligence. As a result, instructors and educational entities from pre-kindergarten to university are forced to train learners to be successful communicators (Educational Testing Service, 2003).

Finally, new curriculum in this century have pushed students to be more active agents in the learning process, necessitating the development of communication skills in order for them to assume the center stage position previously reserved for instructors (Yusof & Halim, 2014). Teachers' encouragement of classroom communication will then serve three main aims: to boost relevant knowledge from students who have already acquired it but are unable to relate it to the question, enable them to interact with the others in discussions, and appropriately define what kind of experiences they have had with peers in order to provide their own input and effect to the discussion (Farrell, 2009).

Discussing the importance and current situation of the communication skill up to here, this research aims to develop a reliable and valid scale for secondary school students to assess their communication skills. Following this

aim, the research question is formed as follows: Is Secondary School Students' Communication Attitude Scale (SSSCAS) developed by the researcher a reliable and valid tool?

2. Method

The general survey approach was used in the research, which aimed to construct a scale for secondary school students to express their opinions regarding communication abilities. This method was used as it enables to find out the qualities, perceptions and motivations of a universe (Hocaoğlu & Akkuş-Baysal, 2019). The procedure started by examining the relevant literature and a draft scale with 32 items was formed. Then, the draft form was revised in terms of item relevance, order and language through expert opinions and pilotted. The data from pilotting was subjected to Exploratory Factor Analysis (EFA) and then Confirmatory Factor Analysis (CFA). Factor analysis, among the some other reasons, is used to test scoring validity when a measure and related scoring keys have been developed. The underlying constrcuts and factors in a scale are explored in EFA whose history goes back to the beginning of 20th century, while specific expectations about the number of factors, whether variables reflect the given factors and if these factors are correlated is questioned in CFA that can be considered as a new approach compared to EFA (Thompson, 2004).

2.1. Participants

The sampling method of the research was simple random sampling. This method is used when the universe has common characteristics such as students of medicine school (Sahin & Karakus, 2019). This method was appropriate for the research as the participants were all students at the same school level which is secondary school. The pilot study was carried out at a secondary school in Aksaray city of Turkey and while 430 students were given the scale, the sample included 397 students due missing answers or same answer to all questions.

3. Findings

3.1. Exploratory Factor Analysis

The draft form of the SSSCAS that consisted of 32 items was applied to 430 secondary school students, and it was seen that 397 scales could be used for analysis. Exploratory factor analysis (EFA) was performed with the data obtained but to determine the adequacy of the data set collected for EFA, KMO and Barlett tests' results were controlled first. When the KMO value is above 0.7, it represents a powerful partial correlation among the items of the scale, and when Barlett test result is significant (p> 0.05), it points out appropriate construct validity (Chen, Yu, & Huang, 2016). KMO (0.822) and Barlett (p= 0.000) test results indicated that the data was appropriate for EFA. According to the results of EFA, there were ten factors whose eigen value was above 1 and the explained variance by them was 59.93% of the total. The scree plot that shows the dominant factors (Figure 1) is used to decide the number of factors (Cokluk, Sekercioğlu, & Büyüköztürk, 2012).
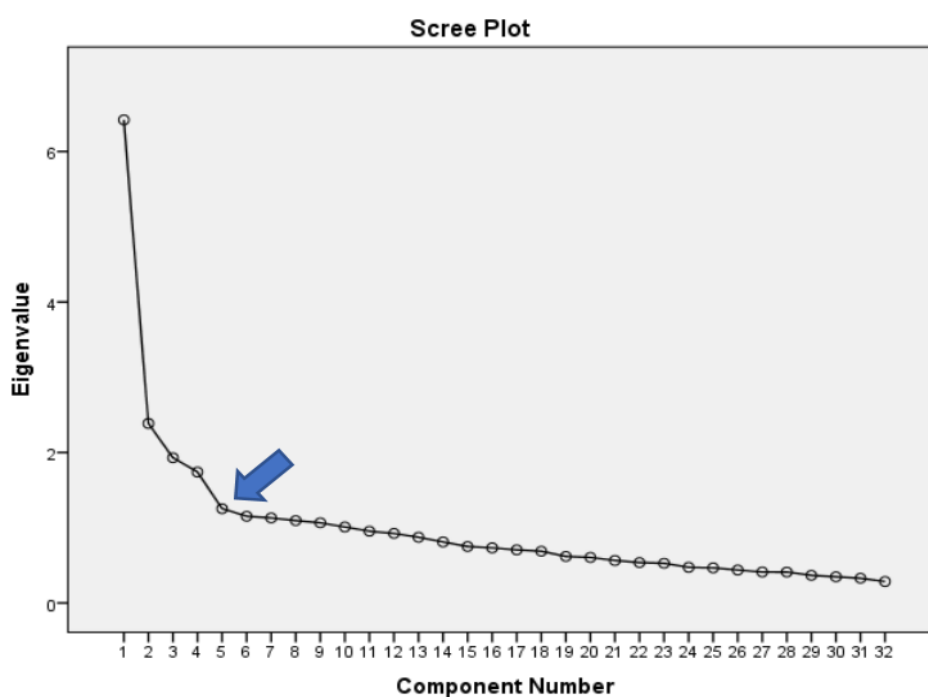

Figure 1. SSSCAS scree plot.

The point on this graph where the decline begins to flatten is the cutoff point for major significant contribution to variance and used to determine how many factors there are (Gorsuch, 1974; cited by Cokluk et al. (2012)). As the downtrend became even starting from the fifth point (see in Figure 1), the scale was supposed to have four factors. The items in a scale are required to have a factor loading over 0.39 (Pituch & Stevens, 2016) and in the repeated EFA with four-factor structure the ninth, tenth and twelfth items in the draft scale were excluded as they did not meet this requirement. The factor loading of the remaining items are given in Table 1.

Table 1. SSSCAS rotated component matrix.

	Component			
	1	**2**	**3**	**4**
OC-1	0.682			
OC-2	0.641			
OC-3	0.626			
OC-4 (-)	0.598			
OC-5	0.597			
OC-6	0.595			
OC-7	0.575			
OC-8	0.564			
OC-9	0.559			
OC-10	0.545			
OC-11	0.530			
OC-12	0.451			
BL&P-13		0.664		
BL&P-14		0.618		
BL&P-15		0.592		
BL&P-16		0.584		
BL&P-17		0.429		
BL&P-18		0.416		
BL&P-19		0.407		
SC-20			0.697	
SC-21			0.630	
SC-22			0.575	
SC-23			0.546	
SC-24			0.516	
SC-25			0.498	
Obs-26 (-)				0.726
Obs-27 (-)				0.644
Obs-28 (-)				0.534
Obs-29 (-)				0.509

When three items were excluded in the four-factor structure, the factor loadings of the items ranged between 0.407 and 0.726 (see Table 1). The first sub-dimension which is called "openness to communication" since the items indicate the willingness to start and maintain the communication includes 12 items. The second sub-dimension which is called "body language and preferences" includes 7 items and the items are about either use of body language as a communication tool or preferences over the way of communication (oral or written). The next sub-dimension includes 6 items and is called "self-confidence" as these items represent how well the students think they are in communication. The last one includes 4 items and called "obstacles" as these items are about negative behaviors that block communication. The total variance explained (TVE) is given in Table 2.

Table 2. SSSCAS explained variance statistics.

Factor	Initial Eigenvalues			Extractions sums of squared loadings			Rotation sums of squared loadings		
	Total	**Variance %**	**Total**	**Total**	**Variance %**	**Cumulative '%**	**Total**	**Variance %**	**Cumulative %**
1	5.846	20.158	20.158	5.846	20.158	20.158	4.548	15.684	15.684
2	2.351	8.107	28.265	2.351	8.107	28.265	2.712	9.351	25.036
3	1.922	6.626	34.891	1.922	6.626	34.891	2.652	9.143	34.179
4	1.717	5.921	40.812	1.717	5.921	40.812	1.924	6.633	40.812

The TVE by the four-factor is 40.812%. While developing a multifactorial scale in the social sciences field, the explained variance between 40% and 60% is accepted as sufficient (Cokluk et al., 2012). As a result, the TVE is sufficient.

3.2. Reliability Analysis

Table 3 represents the reliability index values of the scale and its sub-dimensions.

Table 3. SSSCAS reliability statistics.

Sub-Dimension	Number of Items	Cronbach's Alpha
Openness to communication (OC)	12	0.83
Body language and preferences (BL&P)	7	0.81
Self-confidence (SC)	6	0.80
Obstacles (Obs)	4	0.74
SSSCAS	29	0.81

After the construct validity analysis (CFA) of the Communication Skills scale was over, Cronbach's Alpha reliability values were examined. The reliability value of the OC is 0.83, for the BL&P 0.81, for SC 0.80 and for Obs 0.74. The reliability value of the SSSCAS is 0.81 and they are all above the lower limit of 0.70 (see Table 3). The results of the correlation analysis that indicate the internal consistency showed that there is a significant correlation between all items in the scale and the total score at the level of 0.01 (item-total correlation scores range between 0.40 and 0.57). The independent t-test results between the scores of the highest and lowest 27% groups also show a statistically significant discrimination index for all items.

3.3. Confirmatory Factor Analysis

After the exploratory factor analysis and reliability analysis for the construct validity of the scale, first stage Confirmatory Factor Analysis (CFA) was carried out to test the construct validity and its results are represented below.

CFA results show that the t values of the items are significant at 0.01 level and the error variances of the 13th and 29th items (0.90 and 0.95, respectively) were high (see Figure 2), but since a significant t value was obtained for these items, it was decided to keep them in the scale (Cokluk et al., 2012). The ratio of Chi-square value (996.51) to degrees of freedom (344) which is another important indicator was calculated as 2.89 and the ratio below three in large samples indicates perfect fit. The Root Mean Square Error of Approximation (RMSEA) value in the diagram (0.069) indicates perfect fit when it is less than 0.05, and a good fit when less than 0.08. Goodness of Fit Index (GFI) (0.82) and Adjusted Goodness of Fit Index (AGFI) (0.82) values are below 0.90 which is the cut point for good fit. These values indicate a poor fit. Similarly, the Root Mean Square Residual (RMR) result (0.12) corresponds to poor fit since good fit requires a value of 0.10 or below, while the standardized RMR (SRMR) (0.078) result indicated good fit as it is below the cut point of 0.08. In other words, while RMR indicates weak fit, standardized RMR shows good fit. Non-Normed Fit Index (NNFI) and Comparative Fit Index (CFI) fit indices are required to be above 0.90 for a good fit and NNFI value (0.88) and CFI value (0.89) are below the cut point, so they indicate poor fit. The first stage CFA analysis was followed by the second stage CFA and the results are as shown below (see Figure 3).
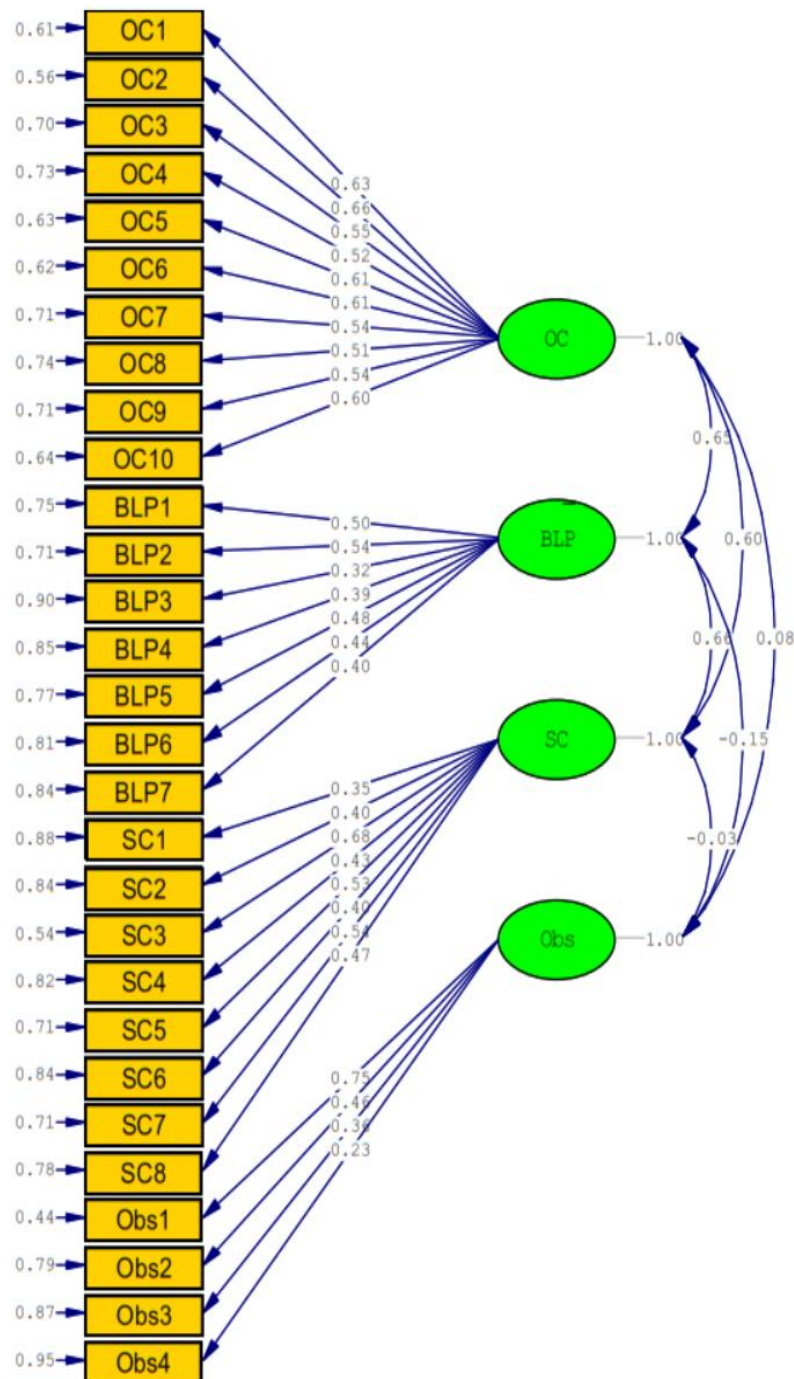

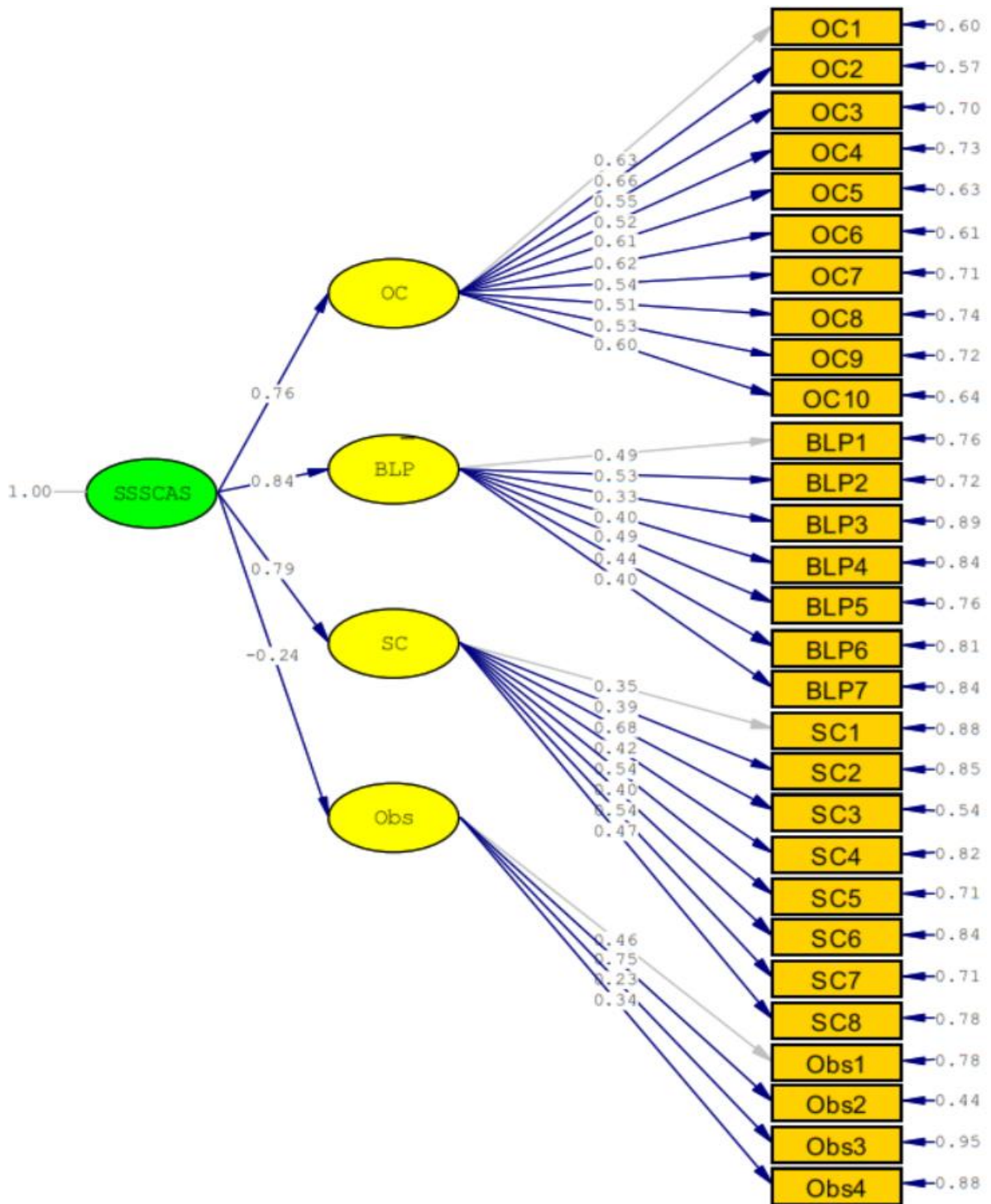**Figure 2.** SSSCAS first stage CFA diagram

Figure 3. SSSCAS second stage CFA diagram.

According to the results of the second stage confirmatory factor analysis, the t values of the items are significant at 0.01 level and the error variance values of all items are below the critical point of 0.90 (see Figure 3). The ratio of the Chi-square value (994.09) to the degrees of freedom (346), was calculated as 2.87. which indicates perfect fit. The RMSEA value should be lower than 0.05 for perfect fit and 0.80 for a good fit. As the value in the diagram (0.069) is less than 0.08, this points out a good fit (Cokluk et al., 2012). GFI (0.85) and AGFI (0.82) are below the cut point of good fit (0.90). So, there is a poor fit in the structure in terms of the relevant values. Similarly, the RMR (0.12) result is above the value of 0.10, which corresponds to poor fit, while the standardized RMR (0.078) result is below the threshold of good fit which is 0.08. While RMR value indicates poor fit, SRMR indicates good fit. The fit indices NNFI and CFI should be above 0.90 but NNFI (0.88) and CFI (0.89) values reveal poor fit again.

4. Conclusion and Discussion

Communication is still a powerful tool in the 21st century that is characterized as one of the soft skills. No matter how much it is affected by the technology, communication as a skill stands as the basic of the education, life, and work. That is why it is needed to be taken seriously, examined, and developed. This study aimed to develop a valid and reliable scale to assess secondary school students' communication skills. The piloting of the 32 items included scale included data from 397 participants from a government state school in Aksaray-Turkey. Three items from the draft form of the scale were excluded from exploratory factor analysis due to insufficient factor loading and following analysis were carried out on 29 items. The remaining items lie under four sub-dimensions, namely openness to communication, body language and preferences, self-confidence, and obstacles. The structure validity was approved through confirmatory factor analysis. The reliability scores of the sub-dimensions and the scale are above the required level. Consequently, the SSSCAS is a valid and reliable tool to use with secondary school students. Educators are highly offered to follow communication skills of their students to prepare them for an age in which communication is a key skill among the others.

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