

## Developing and Validating a Teacher Feedback Literacy Scale

### Öğretmen Geri Bildirim Okuryazarlığı Ölçeği Geliştirilmesi ve Güvenirlilik Çalışması

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#### Abstract

This study seeks to address a gap in the current literature on teacher feedback literacy by creating a valid and reliable teacher feedback literacy scale. The scale's validity and reliability analyses were conducted in two stages using a sample of 508 academics from faculties of education in Türkiye. Following explanatory factor analysis, the scale had three factors named as "Purpose of using feedback", "Way of using feedback" and "Attitude towards feedback" with 23 items. The factor loading values of the three-factor structure were between .408 and .777 and the total variance explained was found to be 49.196. Confirmatory factor analysis revealed that the values model fit index of  $\chi^2/df$ , NNFI, CFI, and IFI were perfect, while RMSEA, SRMR, NFI, and RFI were acceptable. Cronbach's Alpha, split-half, and Guttman split-half reliability coefficients were calculated and resulted in the "Teacher Feedback Literacy Scale" and all of its factors having high reliability as measurements of reliability coefficients of .70 and above. The findings revealed that the 3-factor, 23-item Teacher Feedback Literacy Scale is a valid and reliable measure of teachers' feedback literacy levels.

**Keywords:** Feedback literacy, Teacher, Scale development

#### Öz

Bu çalışma, geçerli ve güvenilir bir öğretmen geri bildirim okuryazarlığı ölçeği geliştirerek mevcut literatürdeki bir boşluğu gidermeyi amaçlamaktadır. Ölçeğin geçerlilik ve güvenilirlik analizleri, Türkiye'deki eğitim fakültelerinden 508 öğretim elemanından oluşan bir örneklem kullanılarak iki aşamada gerçekleştirilmiştir. Açıklayıcı faktör analizi sonuçlarına göre 23 madde ve 3 boyuttan oluşan bir yapı ortaya çıkmıştır ve boyutlar "Geri bildirim kullanma amacı", "Geri bildirim kullanma biçimi" ve "Geri bildirim karşısındaki tutum" olarak isimlendirilmiştir. Üç faktörlü yapının faktör yük değerleri .408 ile .777 arasında olup açıklanan toplam varyans 49.196 olarak bulunmuştur. Doğrulayıcı faktör analizi,  $\chi^2/df$ , NNFI, CFI ve IFI model uyum indeksi değerlerinin mükemmel olduğunu; RMSEA, SRMR, NFI ve RFI'nin ise kabul edilebilir olduğunu ortaya koymuştur. Cronbach's Alpha, Split-half ve Guttman yarı yarıya bölünme güvenilirlik katsayıları hesaplanmış ve "Öğretmen Geri Bildirim Okuryazarlığı Ölçeği" ve tüm faktörlerinin .70 ve üzeri güvenilirlik katsayıları ile yüksek güvenilirliğe sahip olduğu sonucuna ulaşılmıştır. Bulgular, 3 faktörlü, 23 maddelik Öğretmen Geri Bildirim Okuryazarlığı Ölçeğinin öğretmenlerin geri bildirim okuryazarlığı düzeylerini geçerli ve güvenilir şekilde ölçebileceğini ortaya koymuştur.

**Anahtar Kelimeler:** Geri bildirim okuryazarlığı, Öğretmen, Ölçek geliştirme

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## Introduction

Learning and education are endeavors to achieve the established goals, and their implementation in educational settings necessitates a multitude of interconnected actions. The attainment of educational objectives is significantly dependent on feedback, one of the essential elements of the educational system. Feedback is defined as all the actions taken to determine whether the system is operating correctly by assessing the degree to which the objectives are being met and to identify and fix any non-functioning components (Büyükalın Filiz, 2011). There are many purposes of feedback, which stands out as one of the greatest potentials to respond to the changing learning needs of different students in the teaching environment. Dawson et al. (2019) states that feedback is categorized into four areas: Emotional feedback, feedback highlighting students' strengths and weaknesses, feedback regarding exam results, and feedback for development. The goal of feedback that highlights students' strengths and weaknesses is to assist them in identifying their areas of potential and vulnerability, much like the traditional feedback model does. This kind of feedback depends more on telling students what went wrong and right than on offering suggestions for improvement. Emotional feedback serves to encourage and recognize students' efforts, whereas exam score feedback serves to justify students' exam results. The last category of feedback is developmental feedback, which consists of processes designed to help students become better at their work, meaning-making, exams, study techniques, critical thinking, and self-evaluation. To achieve its goals, for learning to occur at the desired level, and for it to be permanent, students must be aware of feedback, and teachers must have the necessary knowledge, skills, and attitudes about the effectiveness of feedback services.

The definitions of feedback demonstrate that it is a process of meaning-making in which teachers and students collaborate actively rather than merely information conveyed from one to the other (Winstone & Carless, 2021). The process has also resulted in a change in the roles that teachers play; teacher competencies in creating and facilitating feedback processes are now more significant and go beyond simply advising teachers on students' strengths and weaknesses and helping them grow (Boud & Dawson, 2021).

Feedback literacy is the term used to describe the competencies that educators and students should possess with regard to feedback activities. The notion of student feedback literacy is articulated as a component of the extensive range of academic literacy necessary for students to adjust to postsecondary education (Sutton, 2012). According to Carless and Boud (2018), feedback literacy is the knowledge, skills, and dispositions needed for students to get the most out of feedback processes. Current definitions of feedback literacy center on helping students understand data from multiple sources and apply it to their own growth by putting them at the center of feedback processes (Boud & Molloy, 2013). As defined by Molloy et al., (2020), student feedback literacy is the ability of students to process and apply the knowledge they have gained during the feedback process, as well as their awareness that feedback is an active and reciprocal process for their own progress.

A teacher's ability to establish the conditions required for students to value and utilize feedback is referred to as feedback literacy. This suggests that the development of students' feedback literacy is closely tied to teachers' capacity to create settings that support feedback processes (Carless & Winstone, 2023). Teacher feedback literacy is defined by Xu and Carless (2017) as the knowledge and abilities of helping students develop their cognitive and social-affective skills for successful feedback processes; feedback literate teachers are aware of their role in helping students develop their capacity for self-regulation; they also believe that strategies to support students' cognitive development in understanding feedback should be developed, with special attention to the sociocultural, relational, and emotional aspects of feedback processes.

According to Boud and Dawson's (2021) framework for teacher feedback literacy, educators should identify the needs of their students and provide differentiated instruction that meets those needs. They also stressed that program design should consider feedback processes, make the most use of the workforce's time spent on feedback processes, build relationships with students that are supportive, approachable, and sensitive, and incorporate technology into feedback processes.

At every educational level, from primary and secondary teachers as well as academic teachers in faculties, the ability of teachers to provide feedback to their students in a supportive environment that optimizes its impact is a critical role that feedback literacy plays. Teachers' understanding, proficiency with, and attitudes toward the idea of feedback can be viewed as indicators of how they actually plan and deliver feedback. After a review of both national and international literature, only a small number of studies on feedback literacy for teachers were discovered. These studies included creating a competency framework for teacher feedback literacy (Carless & Winstone, 2023); improving teacher feedback literacy through activities (Chan & Luo, 2022); highlighting the significance of verbal feedback in teacher feedback literacy (Heron et al., 2023), and teachers' perspectives on feedback literacy (İstencioğlu, 2022). To date, limited number of studies has been conducted with the intention of creating a measurement instrument that is both valid and reliable for assessing teachers' feedback literacy (Zhan, 2024; Zhang & Yang, 2024). Creating a valid and trustworthy assessment instrument to gauge teachers' feedback literacy is the goal of this research in this regard. This research is considered significant because it closes a significant gap in the literature and offers insights into the competencies of teachers in providing feedback.

## **1. Method**

### **1.1. Participants**

The study was conducted over the academic year 2022-2023 with 508 academics from faculties of education in various cities throughout Türkiye. Ethical approval has been obtained from the Scientific Research and Publication Ethics Committee of the Social and Humanities Sciences at Sivas Cumhuriyet University. The study group was not restricted to a particular area or university to reach a sufficiently large study group for exploratory and confirmatory factor analyses, so efforts were made to contact numerous academics across Türkiye. This perspective led to the use of the maximum diversity sampling method, one of the purposeful sampling techniques, in the study to find participants who share similar characteristics but have distinct life experiences. The sample provides better data because it is drawn from various regions with distinct general characteristics that are important to the researcher (Nyimbili & Nyimbili, 2024).

The sample size should be at least five times the number of items tested, according to the literature, even though there is no set standard for either the sample group size or the number of items tested (Bryman & Cramer, 2001; Child, 2006). As an absolute criterion, Kline (1994, cited in Çokluk et al., 2010) emphasizes that 200 people in a sample will be sufficient to extract factors in factor analysis. The proper sample size for item analysis was established based on these opinions.

Data were gathered for exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) from two distinct study groups at different times during the scale development process. The first study group for EFA consisted of 278 academics, 165 of whom were women and 113 of whom were men; the second study group for CFA consisted of 230 academics, 134 of whom were women and 96 of whom were men.

## 1.2. Procedure

The development of a new measure to reveal teachers' feedback literacy using the Likert scale was the focus of this study. A literature review on feedback literacy for teachers was first carried out in order to generate an item pool. In order to provide guidance for the items and factors in the scale, academics' opinions regarding feedback in graduate education were examined utilizing the results of a qualitative study by Bozpolat et al. (2021). A collection of 48 items was generated that were thought to reveal feedback literacy of teachers by reviewing the studies in the literature (Carless & Winstone, 2023; Deneen & Hoo, 2021; Heron et al., 2021; İstencioğlu, 2022; Kara, 2021; Nieminen & Carless, 2023; Yan & Carless, 2022). Four academics with backgrounds in Curriculum and Instruction, Educational Management, Inspection, Planning and Economy, Measurement and Evaluation, and Turkish Education were presented with the items to review for content and face validity. They assessed each item based on its appropriateness for the assessment, clarity, and adherence to grammatical rules. Eight items were taken off the scale due to their lack of clarity and comprehensibility and five items were edited regarding length of sentences and grammar norms in accordance with expert opinions. The response format was a 5-point Likert scale ranging from never to always. Following the revisions, ten academics participated in a pilot study to provide input on the revised items. As a result, the 40-item scale was finalized. An online form was then emailed to academics at a number of universities chosen from each region of Türkiye, encouraging them to voluntarily participate in the research and informing them of its purpose. A total of 523 academics were contacted during the first and second application rounds for the draft scale, which took about three months to complete.

## 1.3. Data Analysis

To ensure construct validity, the SPSS 26 program was utilized for EFA and the Lisrel 8.7 program was used for CFA. During the analysis phase, 15 cases of missing or incorrect data were removed from the dataset. The assumptions required for exploratory factor analysis were tested as well. To ascertain the functionality of the scale items prior to EFA, kurtosis and skewness coefficients as well as item-total correlations were analyzed. The data is considered normally distributed if the skewness and kurtosis coefficients fall between -1.5 and +1.5, according to Tabachnick and Fidell (2015). Following analysis, the obtained scores displayed a normal distribution and the kurtosis and skewness coefficients of the scale scores were found to be within the specified bounds. According to Karagöz and Bardakçı (2020), every item on the scale must be related to the other items in order to produce a consistent measurement result. As a result, the item-total correlation coefficient was computed, and if it was higher than .30, the item was deemed valid and added to the measurement tool (Leech et al., 2015). Nine items (19, 22, 23, 24, 25, 26, 27, 28, and 29) with item-total correlation coefficients less than .30 were eliminated from the scale, and 31 items were subjected to exploratory factor analysis.

Prior to conducting EFA, the results of the Bartlett sphericity test and the Kaiser-Meyer-Olkin (KMO) coefficient were analyzed to assess the suitability of the sample size and its multivariate normal distribution. The Kaiser-Meyer-Olkin (KMO) test compares observed correlation coefficients to partial correlation coefficients (Kalaycı, 2010). A high value indicates that each variable can be perfectly predicted by other variables (Çokluk et al., 2010). Büyüköztürk (2002) states that the KMO test value should fall between 0 and 1, with values above .80 being regarded as excellent. Principal components analysis was chosen as the factorization technique and maximum variability (varimax), one of the orthogonal rotation techniques, as the rotation method in order to ascertain the factor structure of the "Teacher Feedback Literacy Scale".

A factor load of at least .30 is required for an item to be included in the scale, and overlapping items with a factor difference of less than .10 are required to be eliminated (Can, 2023). The number of factors in the scale was ascertained by utilizing the variance percentage, eigenvalue, and scree plot (Çokluk et al., 2010). The number of factors is ascertained at the graph's breaking point, where the slope starts to decline, with the aid of a scree plot diagram (Koçak et al., 2016). It is advised to consider the factor if the eigenvalue is greater than 1 (Karagöz & Bardakçı, 2020; Köklü, 2002). Ultimately, demonstrating the factor structure of the scale requires managing the explained variance ratio. Tavşancıl (2005) states that a variance explained between 40% and 60% is sufficient. A common factor variance of less than .20 indicates heterogeneity among variables (Tabachnick and Fidell, 2015); a total item correlation value between .30 and .70 indicates a moderate level of correlation, and a total item correlation value between .70 and 1.00 indicates a high level of correlation (Büyüköztürk, 2014). In this context, the common factor variance and total item correlation values were examined. The factors were named once the quantity of items and their distribution within each factor was established. Ultimately, the reliability analysis of the 23-item scale was conducted using the Cronbach Alpha ( $\alpha$ ), Guttman split-half, and split-half reliability coefficients.

To confirm the three factor, 23-item structure that was established through EFA, CFA was carried out using the Lisrel 8.7 program. CFA is conducted to assess the degree to which the data conforms to the assumed theoretical structure (Mohd Effendi Ewan et al., 2019). The data obtained from the second study group were subjected to CFA analysis. Kurtosis and skewness values as well as item-total correlation were examined at first to see if the data were suitable for CFA. Chi-square value and fit indices [root mean square error (RMSE), standardized root mean square error (SRMSE), normed fit index (NFI), non-normed fit index (NNFI), comparative fit index (CFI), incremental fit index (IFI), and relative fit index (RFI)] were analyzed in the process of testing the structure. The reliability analysis of the draft scale following CFA was conducted by calculating the Cronbach Alpha ( $\alpha$ ), split-half, and Guttman split-half reliability coefficients, and examining the inter-factor correlation coefficient.

## **2. Results**

### **2.1. Construct Validity**

Explantory Factor Analysis (EFA) was carried out using data from the first study group. Firstly, KMO was used to assess whether the sample size was adequate, and Bartlett's test of sphericity was used to see if the dataset was appropriate for factor analysis. The scale's KMO value was .924, and Bartlett's test of sphericity was significant (5520.000,  $p = .000$ ). These findings indicated that the dataset was appropriate for EFA. The factor pattern of the scale was revealed through principal component analysis using varimax rotation. All items exhibited factor loadings that were not lower than .30 but eight items (1, 8, 10, 11, 15, 16, 20, and 36) were removed from the scale because they overlapped. The Scree plot diagram shown in Figure 1 was utilized for determining the number of factors.

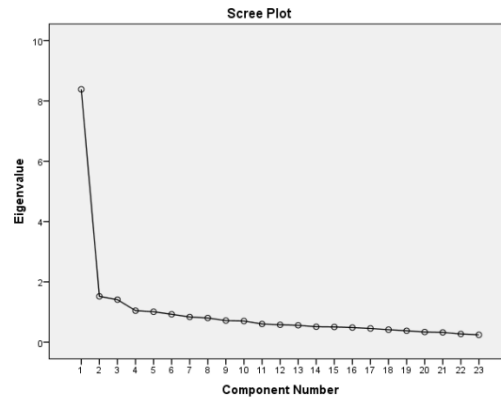


Figure 1. Scree plot diagram

The Scree plot diagram presented in Figure 1 illustrates the three-factor structure of the "Teacher Feedback Literacy Scale". The results of EFA are shown in Table 1.

**Table 1.** EFA results of Teacher Feedback Literacy Scale

Items	Rotated Factor Loadings			Common Factor Variance (h <sup>2</sup> )	Item-total correlation	Variance (%)	Eigenvalue
	Factor 1	Factor2	Factor3				
Item 1	.777			.629	.619	20.659	8.386
Item 2	.721			.592	.650		
Item 3	.607			.489	.624		
Item 4	.708			.554	.615		
Item 5	.553			.463	.644		
Item 6	.660			.530	.641		
Item 7	.620			.564	.667		
Item 8	.527			.389	.598		
Item 9	.603			.563	.700		
Item 10	.561			.523	.665		
Item 11		.578		.416	.563	16.754	1.519
Item 12		.698		.552	.605		
Item 13		.550		.403	.553		
Item 14		.717		.591	.647		
Item 15		.593		.438	.567		
Item 16		.627		.485	.599		
Item 17		.618		.482	.560		
Item 18			.643	.432	.342	11.783	1.411
Item 19			.577	.452	.524		
Item 20			.462	.381	.560		
Item 21			.740	.583	.435		
Item 22			.408	.322	.529		
Item 23			.656	.484	.413		

The factor loading values for Factor1, Factor2, and Factor3 are found to range between .527 and .777, .550 and .717, and .408 and .740, respectively, when Table 1 is analyzed. Heterogeneity among the variables is indicated by a common factor variance in factor analysis of less than .20. The three-factor structure's common factor variances ( $h^2$ ), as shown in Table 1, range from .322 to .629, and the variable heterogeneity is absent. When the item total correlation values are examined, it is seen that the values vary between .342 and .700 and all of the items are significantly correlated with the total test scores at a moderate level ( $p = .000$ ). In this case, it can be said that the features of the items and the features measured by the test are similar, in other words, the items are valid. As a result of the EFA; in the three-factor scale, Factor1 contributed 20.659%, Factor2 16.754%, and Factor3 11.783% to the common variance; while the total variance explained by the entire scale was calculated as 49.196%. Thus, it was concluded that the variance explained for the scale would be sufficient between 40% and 60%. Finally, when the eigenvalues were examined, it was determined that after the third factor, the eigenvalue fell below 1 and the difference between the eigenvalues decreased.

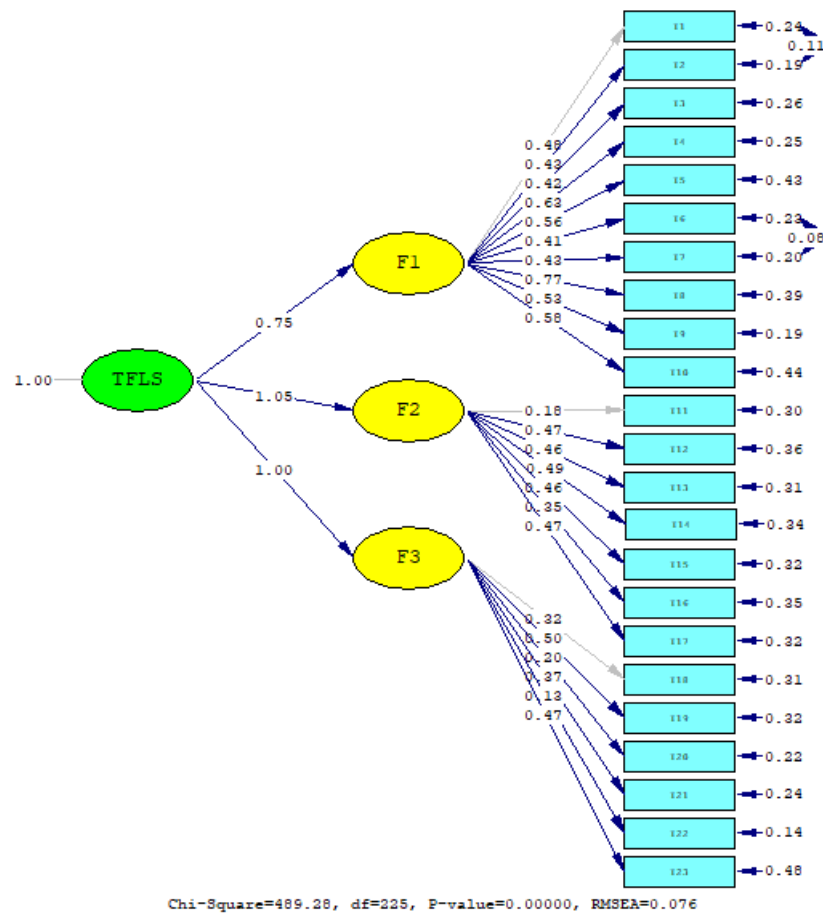
According to the scale factors, Factor1 consisting of items 1-10 was named as "Purpose of using feedback", Factor2 consisting of items 11-17 was named as "Way of using feedback" and Factor3 consisting of items 18-23 was named as "Attitude towards feedback". The aim of the teacher to use feedback, such as pointing out areas of weakness, fixing errors, or assessing students' work, is connected to the "Purpose of using the feedback" factor. The "Way of using feedback" factor is related to how teachers provide feedback in terms of time, communication, or resources, etc. "Attitude towards feedback" factor is made up of items like language, objectivity, care, and other affective aspects of using feedback.

For second order Confirmatory Factor Analysis (CFA), data was gathered and analyzed from the 230 participants in the second study group. Initially, the t-values of every item under the factors were analyzed to determine their significance. The items under the factors that were identified by the EFA analysis were also validated by the CFA. Next, it was discovered that each item's standard factor loading values were .30 and higher. The scale's model fit index values were then calculated. The modification indexes were improved, though, because the RMSEA value of the model fit index value was .085, which was deemed to be below an acceptable threshold. For items 1 and 2, as well as items 6 and 7, which had high covariances among the residual values, new covariances were created while variables that decreased fit were identified in this instance. Consequently, the model fit indices supplied acceptable values. The calculated fit index values and the acceptable ranges of the fit indexes (Byrne, 2010; Çokluk et al., 2010; Erkorkmaz et al., 2013; Kline, 2011; Raykov & Marcoulides, 2006; Seçer, 2018; Yılmaz & Çelik, 2009) are displayed in Table 2.

**Table 2.** Values of the goodness of fit index

Fit indexes	Perfect fit	Acceptable fit	CFA results
$\chi^2$			489.28
sd			225
$\chi^2/\text{sd}$	$0 \leq \chi^2/\text{sd} \leq .3$	$3 < \chi^2/\text{sd} \leq 5$	2.17
RMSEA	$.00 \leq \text{RMSEA} \leq .05$	$.05 < \text{RMSEA} \leq .08$	.076
SRMR	$.00 \leq \text{SRMR} \leq .05$	$.05 < \text{SRMR} \leq .08$	.068
NFI	$.95 \leq \text{NFI} \leq 1.00$	$.90 \leq \text{NFI} < .95$	.92
NNFI	$.95 \leq \text{NFI} \leq 1.00$	$.90 \leq \text{NFI} < .95$	.94
CFI	$.95 \leq \text{CFI} \leq 1.00$	$.90 \leq \text{CFI} < .95$	.95
IFI	$.95 \leq \text{IFI} \leq 1.00$	$.90 \leq \text{IFI} < .95$	.95
RFI	$.95 \leq \text{RFI} \leq 1.00$	$.90 \leq \text{RFI} < .95$	.91

CFA result fit indices for the teacher feedback literacy scale resulted in following values:  $\chi^2 = 489.28$ ,  $df=225$ ,  $p= .00$ ,  $\chi^2/sd= 2.17$ ,  $RMSEA= .076$ ,  $SRMR= .068$ ,  $NFI= .92$ ,  $NNFI= .94$ ,  $CFI= .95$ ,  $IFI= .95$  ve  $RFI= .91$ . The values of  $\chi^2/df$ ,  $NNFI$ ,  $CFI$ , and  $IFI$  are within the limits of perfect fit, while  $RMSEA$ ,  $SRMR$ ,  $NFI$ , and  $RFI$  are within the limits of acceptable fit. As a result, the "Teacher Feedback Literacy Scale" factor structure, which included 23 items and three factors, was validated as a model. In Figure 2, the path diagram with the standard loading values of the items is displayed.



**Figure 2.** Path Diagram for Second Order Confirmatory Factor Analysis

The final form of the scale, which consists of 23 items and three factors "Purpose of using feedback", "Way of using feedback", and "Attitude towards feedback" was identified through EFA (Appendix 1). On a five-point Likert scale, the ratings were as follows: "Never = 1", "Rarely = 2", "Sometimes = 3", "Usually = 4", and "Always = 5". The scale yielded a lowest score of 23 and a highest score of 115. Table 3 displays the results of the calculation of the correlation values between the factors.

**Table 3.** Correlations between factors

	Factor1	Factor2	Factor3	Scale
Purpose of using feedback	1	.678**	.583**	.898**
Way of using feedback	.678**	1	.548**	.848**
Attitude towards feedback	.583**	.548**	1	.728**



Table 3 shows that the correlation between the scale's factors ranged between .583 and .678 and was significant at the .01 level, indicating a moderate level of relationship between factors and a high correlation with the entire scale (Büyüköztürk, 2014).

## 2.2. Reliability

The reliability analysis of the 23-item scale was conducted using the Cronbach Alpha ( $\alpha$ ), Guttman split-half, and split-half reliability coefficients. The results are reported in Table 4.

**Table 4.** Reliability coefficients of the teacher feedback literacy scale

Factors	Cronbach Alpha	Split -half	Guttman split –half
Purpose of using feedback	.89	.85	.89
Way of using feedback	.82	.75	.80
Attitude towards feedback	.72	.71	.70
Scale	.92	.87	.93

Table 4 displays the reliability values of the scale. Cronbach's Alpha, split-half, and Guttman split-half reliability coefficients were calculated as follows: .92, .87, .93 for the entire scale; .89, .85, .89 for "Purpose of using feedback" factor; .82, .75, .80 for "Way of using feedback" factor; .72, .71, .70 for the "Attitude towards feedback" factor, respectively. It is possible to conclude that "Teacher Feedback Literacy Scale" and all of its factors have high reliability as measurements of reliability coefficients of .70 and above.

## 3. Discussion

As a mirror for the learner to see how their own performance appears, an effective feedback process is one of the most important strategies for enhancing learning and achievement. Shared responsibilities between teachers and students are essential for feedback processes to be successful and feedback literacy—the knowledge and skills necessary to play complementary roles in maximizing the impact of feedback processes—is a prerequisite for these shared responsibilities between teachers and students (Carless & Winstone, 2023). Scholarly interest in the area of student feedback literacy is currently quite high. Characteristics of student feedback literacy has been provided by latest research and measures were developed by some researchers to reveal the feedback literacy levels of students (Carless & Boud, 2018; Han & Xu, 2021; Molloy et al., 2020; Yu et al., 2022; Zhan, 2022). However, still in its early phases, research on teacher feedback literacy is primarily concerned with theoretical debates and qualitative investigations (Carless, 2023; Carless & Winstone, 2023; Chan & Luo, 2022). There is currently limited number of validated tool available to assess teachers' feedback literacy. The research agenda in the area of feedback can be advanced and feedback literacy development strategies can be clarified by creating a teacher feedback literacy scale.

The goal of this study was to create a valid and reliable measurement tool to assess teachers' feedback literacy levels. In this direction; EFA, CFA, and reliability analyses were performed respectively. EFA calculations included factor loadings, common factor variances, item total correlations, total variance explained, and eigenvalues. The final scale explains 49.196% of the total variance, which is an acceptable value, and 23 items are categorized under three factors as a result of factor analysis.

The CFA revealed significant t-values for each scale item, confirmation of AFA factors, and standard factor loads of .30 or higher. The model fit index values of the scale demonstrated either perfect fit or acceptable fit. As a result, the factor structure of the 23-item, 3-factor "Teacher Feedback Literacy Scale" was validated.

Within the "Teacher Feedback Literacy Scale, upon examining the correlation values of the factors, it was observed that they ranged from .583 to .678, indicating a moderate level of relationship between the factors. Cronbach's Alpha, split-half, and Guttman split-half reliability coefficients were calculated and resulted that "Teacher Feedback Literacy Scale" and all of its factors have high reliability as measurements of reliability coefficients of .70 and above.

In this specific instance, it is believed that "Teacher Feedback Literacy Scale " developed to measure teachers' feedback literacy levels is a valid and reliable scale, and the scale's results will reveal teachers' perspectives on their feedback literacy levels. Participants in the validity and reliability studies of the scale developed for this study were academics working for education faculties and are regarded as academic teachers with a focus on their teacher identity. In this regard, it is noteworthy that neither primary or secondary school teachers nor academics from other faculties participated in the validity and reliability examinations of the scale. On the basis of this, it is possible to recommend that validity and reliability examinations and additional research be done on different populations.

**Değerlendirme/ *Evaluation:***

Çift Taraflı Kör Hakemlik Sistemi

*Double Blind Refereeing System*

**Etik Kurul İzni/ *Ethics Committee Permission:***

Sivas Cumhuriyet Üniversitesi Rektörlüğü Bilimsel Araştırma ve Yayın Etiği Sosyal ve Beşerî Bilimler Kurulu'nun 28.10.2021 tarih ve 91726 sayılı yazısı ile etik açıdan uygun görülmüştür.

*Per the decision of the Sivas Cumhuriyet University Scientific Research and Publication Ethics Social and Human Sciences Board, dated 28.10.2021 and numbered: 91726, ethics committee permission was obtained.*

**Etik Beyanı/ *Ethical Statement:***

Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.

*It is hereby declared that scientific and ethical principles were adhered to during the preparation of this study and that all studies used as references are listed in the bibliography.*

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**Yapay Zekâ Kullanımı / Use of Artificial Intelligence:**

Bu çalışmanın hazırlanma sürecinde yapay zekâ tabanlı herhangi bir araç veya uygulama kullanılmamıştır. Çalışmanın tüm içeriği, yazar(lar) tarafından bilimsel araştırma yöntemleri ve akademik etik ilkelere uygun şekilde üretilmiştir.

*No artificial intelligence-based tools or applications were used in the preparation of this study. All content of the study was produced by the author(s) in accordance with scientific research methods and academic ethical principles.*

**Araştırmacıların Katkı Oranı Beyanı/ *Declaration of the contribution rate of the researchers:***

Birinci yazar %40, ikinci yazar %30, üçüncü yazar ise %30 oranında katkı sağlamıştır.

*The first author contributed 40%, the second author 30%, and the third author 30%.*

**Çıkar Çatışması Beyanı/ *Declaration of conflict of interest:***

Bu çalışmada herhangi bir potansiyel çıkar çatışması bulunmamaktadır.

*There is no potential conflict of interest in this study.*

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Appendix 1. Teacher Feedback Literacy Scale

No	Items	Never	Rarely	Sometimes	Usually	Always
Item 1	I provide feedback to help students understand where their work needs to be improved.	(1)	(2)	(3)	(4)	(5)
Item 2	I provide feedback to help students do their work.	(1)	(2)	(3)	(4)	(5)
Item 3	I provide feedback to help students access information.	(1)	(2)	(3)	(4)	(5)
Item 4	I use feedback to determine whether students have met their goals.	(1)	(2)	(3)	(4)	(5)
Item 5	I use feedback to evaluate students' homework/study processes.	(1)	(2)	(3)	(4)	(5)
Item 6	I use feedback as a tool to help students learn.	(1)	(2)	(3)	(4)	(5)
Item 7	I use feedback to help students improve.	(1)	(2)	(3)	(4)	(5)
Item 8	I use feedback to inform students about the performance criteria.	(1)	(2)	(3)	(4)	(5)
Item 9	I use feedback to streamline the learning-teaching process.	(1)	(2)	(3)	(4)	(5)
Item 10	I use feedback to share my knowledge and experiences.	(1)	(2)	(3)	(4)	(5)
Item 11	I provide feedback throughout the learning process.	(1)	(2)	(3)	(4)	(5)
Item 12	I provide feedback that encourages students to conduct research.	(1)	(2)	(3)	(4)	(5)
Item 13	I assess whether the feedback's purpose has been met.	(1)	(2)	(3)	(4)	(5)
Item 14	Throughout feedback process, I maintain constant contact with the students.	(1)	(2)	(3)	(4)	(5)
Item 15	I provide feedback that allows students to see things from a scientific perspective.	(1)	(2)	(3)	(4)	(5)
Item 16	I encourage students to self-assess by providing feedback.	(1)	(2)	(3)	(4)	(5)
Item 17	I encourage students to seek feedback from various sources (faculty member/teacher, peer, internet, books, technology, etc.).	(1)	(2)	(3)	(4)	(5)
Item 18	I believe in using constructive language when providing feedback.	(1)	(2)	(3)	(4)	(5)
Item 19	I consider the student's level when providing feedback.	(1)	(2)	(3)	(4)	(5)
Item 20	I provide feedback because I care about the students.	(1)	(2)	(3)	(4)	(5)
Item 21	I believe it is critical to be objective when providing feedback.	(1)	(2)	(3)	(4)	(5)
Item 22	I believe I am qualified to provide effective feedback.	(1)	(2)	(3)	(4)	(5)
Item 23	I believe feedback is essential in the teaching-learning process.	(1)	(2)	(3)	(4)	(5)

\*Unvalidated translation. Using the scale in different languages should be re-evaluated in terms of its reliability and validity.

## Ek 2.Öğretmen Geri Bildirim Okuryazarlığı Ölçeği

No	Maddeler	Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
Madde 1	Geri bildirim sayesinde öğrencileri çalışmalarındaki zayıf yönlerine ilişkin bilgilendiririm.	(1)	(2)	(3)	(4)	(5)
Madde 2	Geri bildirim sayesinde öğrencileri çalışmalarının nasıl olması gerektiğine ilişkin yönlendiririm.	(1)	(2)	(3)	(4)	(5)
Madde 3	Geri bildirim sayesinde öğrencileri bilgiye ulaşabilmeleri için yönlendiririm.	(1)	(2)	(3)	(4)	(5)
Madde 4	Geri bildirim sayesinde öğrencilerin hedefe ulaşip ulaşmadıklarını değerlendiririm.	(1)	(2)	(3)	(4)	(5)
Madde 5	Geri bildirim sayesinde öğrencilerin ödev/çalışma sürecini değerlendiririm.	(1)	(2)	(3)	(4)	(5)
Madde 6	Geri bildirim öğrencilerin öğrenmesini sağlayan bir unsur olarak kullanırım.	(1)	(2)	(3)	(4)	(5)
Madde 7	Geri bildirim öğrencileri geliştiren bir unsur olarak kullanırım.	(1)	(2)	(3)	(4)	(5)
Madde 8	Geri bildirim öğrencileri performans kriterlerinden haberdar etmek için kullanırım.	(1)	(2)	(3)	(4)	(5)
Madde 9	Geri bildirim öğrenme-öğretme sürecini verimli yürütmek için kullanırım.	(1)	(2)	(3)	(4)	(5)
Madde 10	Geri bildirim bilgi ve deneyimlerimi paylaşmak için kullanırım.	(1)	(2)	(3)	(4)	(5)
Madde 11	Geri bildirim öğrenme sürecinin tüm aşamalarında vermeyi tercih ederim.	(1)	(2)	(3)	(4)	(5)
Madde 12	Öğrencileri araştırmaya teşvik edecek geri bildirimler veririm.	(1)	(2)	(3)	(4)	(5)
Madde 13	Geri bildirim amacına ulaşip ulaşmadığını kontrol ederim.	(1)	(2)	(3)	(4)	(5)
Madde 14	Geri bildirim sürecinde öğrencilerle sürekli iletişim kurarım.	(1)	(2)	(3)	(4)	(5)
Madde 15	Öğrencilere bilimsel bakış açısı kazandıracak geri bildirimler veririm.	(1)	(2)	(3)	(4)	(5)
Madde 16	Geri bildirim vererek öğrencileri öz değerlendirme yapmaya teşvik ederim.	(1)	(2)	(3)	(4)	(5)
Madde 17	Öğrenciyi farklı kaynaklardan (öğretim üyesi/öğretmen, akran, internet, kitap, teknoloji vs.) geri bildirim almaya teşvik ederim.	(1)	(2)	(3)	(4)	(5)
Madde 18	Geri bildirim verirken yapıcı bir dil kullanmayı önemserim.	(1)	(2)	(3)	(4)	(5)
Madde 19	Geri bildirim verirken öğrenci seviyesini dikkate alırım.	(1)	(2)	(3)	(4)	(5)
Madde 20	Öğrenciyi önemseydiğim için geri bildirim veririm.	(1)	(2)	(3)	(4)	(5)
Madde 21	Geri bildirim verirken objektif davranmanın önemli olduğunu düşünürüm.	(1)	(2)	(3)	(4)	(5)
Madde 22	Etkili geri bildirim verme konusunda yeterli olduğumu düşünüyorum.	(1)	(2)	(3)	(4)	(5)
Madde 23	Öğrenme-öğretme sürecinde geri bildirim önemli olduğunu düşünüyorum.	(1)	(2)	(3)	(4)	(5)