



Development and validation of a multidimensional effective communication scale for senior high school graduates

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Abstract

Senior high school graduates often face emotional barriers, such as speaking anxiety and fear of judgment, even when they possess adequate language skills. To address this gap, this study developed and validated a multidimensional scale to evaluate effective communication among Grade 12 graduates, anchored in the Transactional Model of Communication and the "6 Cs" of message construction. Through Exploratory Factor Analysis, three core dimensions emerged: Authenticity, Empathy, and Sensitivity, which were subsequently refined through Confirmatory Factor Analysis into an 18-item scale demonstrating strong model fit (CFI = 0.91, TLI = 0.90, RMSEA = 0.0716). The final instrument showed high internal consistency, with Cronbach's alpha coefficients exceeding 0.80 across all factors. At the same time, correlation analyses indicated that authenticity is strongly related to empathy, which in turn is moderately related to sensitivity. By addressing cognitive, relational, and emotional dimensions, this validated tool provides a structured framework for assessing graduate outcomes and guiding instructional practices aligned with 21st-century skill requirements.

Keywords: *scale development, speaking anxiety, transactional model of communication, factor analysis*

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1. Introduction

Effective communication is a multifaceted skill that integrates emotional understanding, nonverbal cues, attentive listening, and stress management (Sumaiya et al., 2022; Sofi et al., 2025). These skills are essential for effective interaction in personal, academic, and professional settings. In higher education and today's workplace, effective communication skills contribute to improved academic achievement, teamwork, leadership, and overall organizational performance (Carter, 2023; Yathin, 2024). Consequently, communication competence serves as both a foundational life skill and a decisive factor in long-term career readiness. Despite its recognized importance, students worldwide struggle with spoken English and interpersonal interactions due to ineffective teaching methods, psychological and sociocultural barriers, First Language (L1) interference, and limited instructional resources (Islam & Stapa, 2021; Wulandari et al., 2022).

In the Philippine context, where English proficiency is vital for educational and socio-economic opportunities, a notable skills gap persists. While the Philippines ranks second in Asia and 20th globally in English proficiency with high national scores (CNN Philippines, 2023), classroom-level realities present a contrasting picture. Reports from the Philippine Institute for Development Studies reveal that many public high school graduates lack basic English competencies required for Senior High School (SHS) and higher education (Antivola, 2023). Although the Philippine K to 12 curriculum includes subjects such as Oral Communication in Context, specifically designed to foster speaking and listening mastery, the subject is frequently overlooked or hindered by low student motivation, moderate confidence, and limited teacher preparation time (Tomas, 2023). Studies across both public and private institutions indicate that while SHS students can communicate in routine situations, many do not reach core proficiency levels and experience frustration during real-world speech delivery (Blas et al., 2018; Eslit & Valderama, 2023; Salvador et al., 2023). This problem was further exacerbated by COVID-19 distance learning, which limited opportunities for interaction and slowed the development of oral skills (Centeno, 2021).

While existing literature highlights the widespread communication deficiencies and advocates for remedial interventions (Eslit & Valderama, 2023; Salvador et al., 2023), a critical measurement gap remains. Most available assessments evaluate general language proficiency or basic academic performance rather than providing a holistic, context-specific evaluation of communication competence that encompasses clarity, conciseness, precision, completeness,

and psychological readiness. Without a validated tool, educational institutions may struggle to assess the various factors that influence communication competence accurately. As a result, it becomes difficult to evaluate graduate readiness and develop targeted interventions that support students' transition from high school to higher education and the workforce.

This study aims to address this gap by examining the high school students of a private university in the Philippines. At the institution, effective communication is recognized as one of the key outcomes expected of its graduates. Given the need for a reliable and comprehensive assessment instrument, this study aims to develop and validate a scale to assess the levels of effective communication among Grade 12 graduates. Specifically, it seeks to identify the underlying factors that constitute effective communication among senior high school students, establish the construct validity of the newly developed scale, and determine the internal consistency and reliability of the questionnaire.

2. Literature Review

The SHS students generally demonstrate baseline competence across the core language domains of listening, speaking, reading, and writing (Parmis & Domingo, 2020). However, communication competence cannot be evaluated solely by linguistic proficiency or knowledge of grammar. Empirical evidence indicates that while students often possess adequate knowledge of English and Filipino, they frequently struggle to articulate complex ideas in authentic situations, often relying on code-switching to navigate gaps in expression (Dizon et al., 2022). Furthermore, high oral proficiency is heavily moderated by self-efficacy, mastery experiences, and constructive feedback (Pucya et al., 2023). Effective communication is a multidimensional construct that involves an interplay among linguistic skills, personal agency, and real-time situational performance.

Despite holding basic language knowledge, many SHS students encounter significant affective barriers that prevent them from fully demonstrating their communicative abilities. Speaking anxiety, rooted in low self-esteem, fear of audience evaluation, and situational stress, remains a prevalent obstacle to effective public speaking (Lungay, 2023). Specific linguistic anxieties related to phonology, grammar, and vocabulary acquisition often trigger severe self-consciousness and a fear of negative reactions from peers and instructors (Farhani et al., 2020; Sansaluna et al., 2021). Moreover, psychological and sociocultural dynamics directly impact students' willingness to communicate during academic presentations and group discussions

(Bastida & Yapo, 2019). Studies reveal that a substantial proportion of SHS students exhibit low interpersonal communication skills (57%) and diminished self-confidence (59%), largely driven by a pervasive fear of judgment (Anggeraini & Farozin, 2019; Lignes et al., 2020). These affective constraints, specifically shyness, low motivation, nervousness, and fear of making mistakes, frequently outweigh cognitive limitations in restricting oral performance (Suryani et al., 2020; Zaid & Sarjiyati, 2018).

In addition to internal psychological barriers, observed communication challenges extend to delivery mechanics and environmental influences. SHS students frequently demonstrate delivery weaknesses during formal speaking tasks, including poor eye contact, low vocal projection, articulation issues, lack of discourse coherence, and inappropriate language use (Rayla & Sonsona, 2021). Environmental and instructional factors further compound these delivery deficits. The complexity of subject matter, peers' attitudes, and unsupportive classroom environments exacerbate students' hesitation (Aranda, 2022). Consequently, researchers have stressed the necessity of interactive interventions, such as psychodrama role-playing (Anggeraini & Farozin, 2019), structured oral activity compendiums (Rayla & Sonsona, 2021), and creative, game-based instructional strategies (Zaid & Sarjiyati, 2018) to cultivate a positive mindset and alleviate anxiety.

Although research shows that communication difficulties among senior high school (SHS) students are complex and influenced by both observable communication behaviors and internal emotional factors, important gaps remain. Existing studies often examine issues such as speaking anxiety, delivery problems, and teaching interventions separately rather than treating communication as a holistic construct. In addition, there is a lack of context-specific, validated assessment tools that measure the broader communication skills expected of SHS graduates, beyond general language tests, qualitative assessments, or self-reported anxiety scales.

Therefore, a critical measurement gap exists. This study addresses this limitation by developing and validating a comprehensive scale for assessing effective communication competence. It focuses on Grade 12 graduates for the 2023–2024 academic year. By establishing the construct validity and internal consistency of this instrument, this study provides a systematic framework for evaluating graduate outcomes and informing targeted instructional practices.

3. Theoretical Framework

This study is anchored primarily on the Transactional Model of Communication (also referred to as the Contextualized Model of Communication), which serves as the overarching theoretical framework for developing and validating the Effective Communication Scale. The transactional model describes communication as an ongoing and mutually interactive process. It emphasizes that communication is shaped by context, with communicators simultaneously encoding, transmitting, interpreting, and responding to feedback. Effective communication is achieved when messages are clearly transmitted, accurately decoded, and appropriately responded to within a given social, psychological, and cultural environment. This framework provides the core rationale for evaluating communication as dynamic, interactive competency rather than a static set of language rules.

To operationalize the multifaceted dimensions of effective communication within this transactional framework, several supporting communication theories were integrated into a cohesive conceptual foundation. First, Grice's Cooperative Principle and Maxims of Conversation (Spector, 2022) inform the dimensions of message quality by asserting that effective discourse requires contributions that are informative, truthful, relevant, and perspicuous. At the interpersonal level, Solomon's (2003) Transactional Analysis emphasizes self-awareness of ego states during communication, showing how emotional maturity and adaptiveness foster clear, constructive interactions. Building on relational dynamics, Social Penetration Theory (Carpenter & Greene, 2016) underscores the vital role of appropriate self-disclosure, mutual trust, and relational depth in achieving successful engagement.

Furthermore, the framework incorporates theories centered on audience engagement and psychological processing. The Elaboration Likelihood Model (White, 2019) explains how communicators tailor their messages to match audiences' processing abilities and motivation, a skill essential for persuasive, audience-centered communication. Finally, Cognitive Dissonance Theory (Jones & Mills, 2019) addresses how effective communicators navigate conflicting beliefs and reduce audience resistance through thoughtful, empathetic dialogue. These theoretical perspectives provide a comprehensive basis for capturing both the cognitive and relational dimensions of communication competence.

Complementing the communication theories are the foundational principles of effective message construction identified by Akilandeswari et al. (2015). According to the model, effective communication requires clarity, correctness, conciseness, completeness,

conscientiousness, and consideration of context. These "6 Cs" define the tangible, observable qualities of effective message delivery and serve as the direct reference for generating the initial item pool for the scale.

Finally, this theoretical synthesis is contextualized within the Department of Education (DepEd) K to 12 Basic Education Curriculum. National educational policies mandate that SHS graduates demonstrate 21st-century skills, specifically communication, collaboration, learning, and innovation, essential for higher education and career readiness. Core SHS subjects such as Oral Communication in Context and Reading and Writing Skills explicitly aim to cultivate these competencies.

By integrating the Transactional Model, supporting communication theories, message quality principles, and DepEd curricular benchmarks, this framework provides a comprehensive theoretical foundation. These theoretical perspectives define the constructs, guide item generation, and establish the theoretical basis for evaluating the construct validity and internal consistency of the Effective Communication Scale for Grade 12 graduates.

4. Methodology

This study employed an instrument development research design to construct and validate a scale measuring the effective communication competencies of SHS graduates. Extending standard scale development procedures, such as exploratory and confirmatory factor analyses, the study adopted a context-driven framework that integrates theoretical grounding, stakeholder-informed item generation, empirical psychometric evaluation, and alignment with institutional learning outcomes. This approach ensured that the instrument captured both universally recognized communication dimensions and context-specific competencies expected of SHS graduates. Consequently, the study's methodological contribution lies in the systematic contextualization and validation of a communication assessment model tailored to a specific learner population.

4.1. Instrument Development

The communication assessment scale was developed using a systematic process that included item construction, validity testing, and reliability assessment. To make the scale more relevant to the study's setting, the standard development process was expanded by

incorporating an institutionally grounded framework, consistent with the procedures recommended by Hinkin et al. (1997).

This framework defined communication skills based on specific graduate outcomes and educational goals. By using this customized approach, the instrument measures effective communication as it is actually defined and practiced in a specific school environment, rather than relying only on broad, generic measures.

4.2. Item Generation

To ensure theoretical soundness and local relevance, the study developed the questionnaire items based on established communication theories and the specific institutional needs. This approach made sure the question pool covered core communication concepts while reflecting the practical skills expected of SHS graduates.

Following a review of existing literature, an initial set of items was drafted with a focus on clarity, cultural appropriateness, topic variety, and simplicity (ensuring each item asked only one clear question). Subject matter experts then reviewed the drafted items to evaluate their content quality and relevance. Next, the researchers conducted a pilot test with a small group of participants to identify confusing wording, reading difficulties, and formatting issues. They used feedback from the expert panel and pilot test to revise and finalize the instrument before full distribution.

4.3. Questionnaire Administration

Table 1

5-Point Likert Scale

Arbitrary Value	Descriptive Equivalent	Interpretation
1	Never	Does not demonstrate effective communication skills.
2	Seldom	Rarely communicates effectively, indicating notable areas for improvement.
3	Sometimes	Inconsistently exhibits effective communication.
4	Often	Frequently communicates effectively with minor inconsistencies.
5	Always	Consistently demonstrates strong and effective communication.

The finalized questionnaire was distributed to a larger sample of graduates to evaluate its statistical quality, including its validity and reliability. Participants responded using a 5-point Likert scale, which provided sufficient detail to capture differences in their answers and support scale-level analysis. Because the study collected data only from a single private university, the findings reflect the context of this specific school. Although this single-school design limits the generalizability of the statistical results to other high school populations, the validated framework can still serve as a useful tool for other researchers. As a result, the scale provides a strong foundation for future studies to test and confirm its structure across different schools, educational settings, and regions.

4.4. Exploratory Factor Analysis

Exploratory Factor Analysis (EFA) reduced the number of survey items and identified the main dimensions of effective communication. First, a parallel analysis was conducted to decide how many factors to keep. Items were retained only if they clearly aligned with a single factor and accurately reflected its core concept. To ensure quality and rigor, the removal of items was based on both statistical results and theoretical reasoning. Items were cut if they had low factor loadings, loaded heavily onto multiple factors, showed low communalities, lacked conceptual relevance, or repeated existing items. This dual approach ensured that every item removed was justified both statistically and logically.

4.5. Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) verified the questionnaire's validity and determined whether the data fit the expected factor structure. Model fit was evaluated using standard indices: the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA). Relationships among the factors were also examined through factor covariances. To establish discriminant validity, the Average Variance Extracted (AVE) for each factor was compared to the correlations between factors, confirming that each construct measured a distinct aspect of effective communication.

Due to sample size limits within the target population, both the EFA and CFA were performed on the same dataset. Although this is acceptable during initial questionnaire development, using a single sample for both stages limits the strength of the validation because the factor structure was not tested in a separate group. As a result, the fit indices and validity

results may reflect traits unique to this sample and should be interpreted carefully. Future studies should test the questionnaire on an independent sample to confirm its structure and broader applicability.

4.6. Internal Consistency

Following the refinement of the survey items through factor analyses, scale reliability was evaluated for each factor using Cronbach's alpha (α) and Composite Reliability (CR). Composite Reliability was included alongside Cronbach's alpha because it provides a more accurate estimate by accounting for differences in how strongly each item relates to its factor. In addition, AVE was calculated to establish convergent validity, measuring how well items within the same factor shared common variance. These measures confirmed that the final subscales were both reliable and valid.

4.7. Participants

The target population included all Grade 12 graduates (194) across the STEM, HUMSS, and ABM strands during the 2023–2024 academic year. Based on Cochran's formula for a finite population (at a 95% confidence level and a 5% margin of error), a minimum sample size of 130 participants was required. The survey yielded 185 valid responses (95.36% response rate), which served as the main dataset for validating the scale.

A sample size of was psychometrically sufficient for factor analysis, meeting recommended participant-to-item ratio guidelines to ensure stable factor loadings. However, two sampling limitations should be acknowledged. First, because data collection was limited to a single school, the statistical results cannot be broadly generalized to all high school settings. Second, due to sample size limits within this population, both EFA and CFA were conducted on the same dataset. This can increase sample-specific bias and lead to overly optimistic fit indices. As a result, this study provides an initial, context-specific validation of the instrument. Future research should test the scale on independent, diverse samples across different schools to confirm its factor structure and external validity.

4.8. Ethical Considerations

The institutional ethics review committee approved this study before data collection began. Participation in the study was entirely voluntary, and all participants provided informed

consent. They were informed that they could withdraw from the study at any time without facing any adverse consequences. The survey was carefully designed to be fair, culturally sensitive, and free from demographic bias.

To protect participant privacy, strict confidentiality and data anonymization rules were followed. All collected data were de-identified, stored in secure digital files, and made accessible only to the primary research team. Results are presented only as combined group data so that no individual can be identified. Finally, a summary of the main findings was shared with the institution to help improve communication instruction.

5. Results and Discussion

5.1. Underlying Factors of Effective Communication Among SHS Students

Table 2

Initial factor loadings

Item	Factor Loadings					
	1	2	3	4	5	6
Q1		0.3				
Q2			0.562			
Q3		0.385				
Q4	0.352					
Q5					0.54	
Q6			0.746			
Q7			0.675			
Q8	0.453					
Q9	0.327					
Q10		0.432				
Q11					0.578	
Q12		0.368				
Q13					0.485	
Q14		0.666				
Q15		0.714				
Q16		0.476				
Q17		0.345				
Q18	0.315					-0.322
Q19	0.481					
Q20	0.375					
Q21			0.302			
Q22		0.312				
Q23						
Q24	0.338					
Q25	0.614					
Q26						
Q27	0.568					
Q28			0.513			
Q29			0.736			
Q30			0.695			
Q31			0.35			0.353
Q32		0.427				
Q33	0.309			0.311		
Q34	0.611					
Q35						

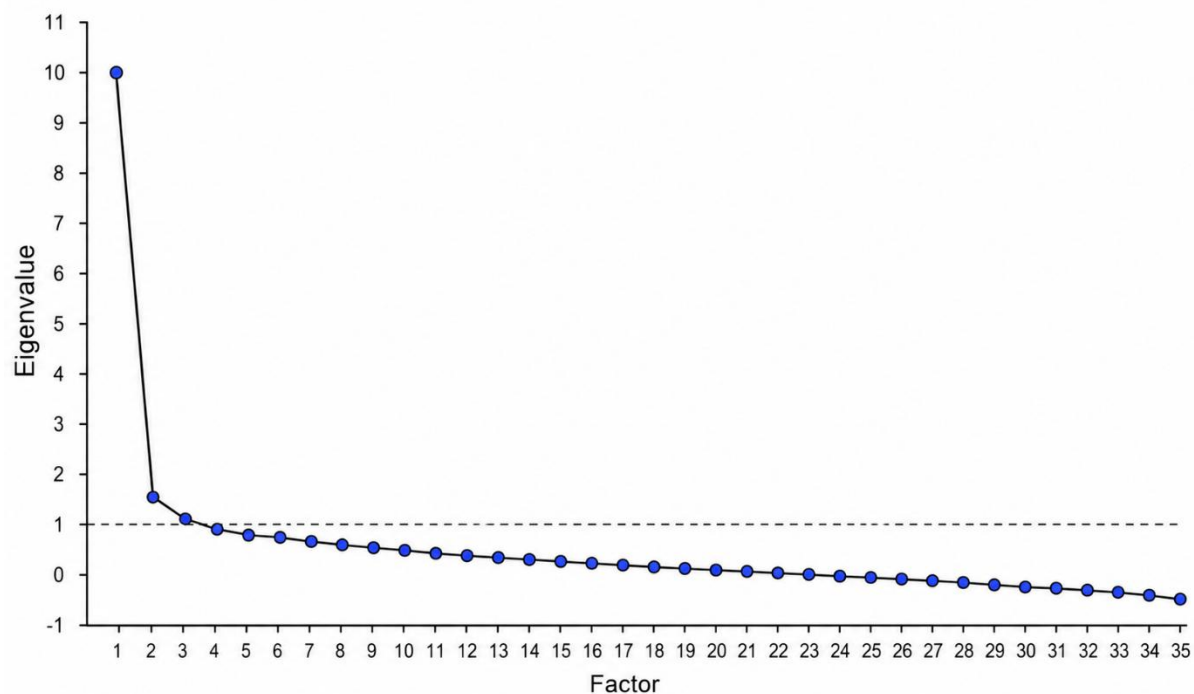
EFA was employed to identify the key factors that measure effective communication among senior high school graduates. This process aimed to refine the initial item pool into a statistically sound measurement tool.

Initially, 35 items were analyzed assuming a six-factor structure based on the original indicators used in the questionnaire. As shown in Table 2, the initial factor loadings revealed that the items did not group according to the six intended indicators, and the sixth factor was particularly weak, containing only one significant loading.

To determine the exact number of factors to retain, the researcher first utilized a scree plot to identify the "elbow," which suggested a structure of approximately two factors.

Figure 1

Scree plot of the factor vs. eigenvalue



To provide a more rigorous basis for retention, a Parallel Analysis was performed, as the third factor's initial eigenvalue of 0.906 was very close to the standard 1.0 threshold. As illustrated in Table 3, the first three factors were retained because their observed eigenvalues exceeded the simulated thresholds derived from a random data set, while the fourth factor did not. This confirmed that a three-factor structure is the most statistically sound representation of the data.

Table 3*Initial eigenvalue*

Factor	Eigenvalue
1	10.12576
2	1.37654
3	0.90673
4	0.71352
5	0.61161
6	0.57025

Following the identification of the three-factor structure, final factor loadings were calculated using Varimax rotation. This process resulted in the assignment of 17 items to Factor 1, 13 to Factor 2, and 4 to Factor 3. Notably, item Q23 was omitted from the tool because it did not exhibit significant factor loadings across the three factors. Based on these loadings, the study discerned three significant underlying pillars: Authenticity, Empathy, and Sensitivity.

Table 4*Final factor loadings based on parallel analysis*

Item	Factor Loadings		
	1	2	3
Q1		*0.519	
Q2		0.316	*0.452
Q3	0.349	*0.584	
Q4	*0.307		
Q5	*0.443		
Q6			*0.713
Q7			*0.703
Q8		*0.471	
Q9	*0.504	0.435	
Q10	*0.489	0.437	
Q11	*0.555	0.306	
Q12		*0.435	
Q13	*0.405		
Q14	*0.426	0.376	
Q15	*0.521	0.331	
Q16	*0.544	0.313	
Q17	0.307	*0.487	

Item	Factor Loadings		
	1	2	3
Q18		*0.573	
Q19		*0.423	
Q20	*0.431	0.338	
Q21	*0.456		
Q22		*0.369	0.323
Q23	-	-	-
Q24	0.325	*0.390	
Q25		*0.602	
Q26			*0.407
Q27		*0.443	
Q28	*0.468		
Q29	*0.688		
Q30	*0.763		0.303
Q31	*0.607		
Q32	*0.559	0.324	
Q33		*0.369	0.345
Q34		*0.527	
Q35	*0.443	0.337	

The identified factors align with the Transactional Model of Communication, which views communication as a reciprocal, context-dependent process where communicators simultaneously process feedback within a social and psychological environment. Effective communication requires being true to oneself and taking responsibility for the message. This involves articulating problems clearly (Q13), collaborating to solve them (Q14), and confirming understanding through active listening techniques such as paraphrasing (Q30) or asking for clarification (Q31).

Authentic communication is more than expressing thoughts; it requires genuinely listening to others to foster a reciprocal exchange that builds trust and credibility in both professional and personal settings (Thornton, 2018; Baxter & Montgomery, 1996). This aligns with Social Penetration Theory, which emphasizes the role of appropriate self-disclosure and mutual trust in achieving relational depth. Furthermore, authenticity is a key component of effective leadership, allowing for deeper connections with an audience (Goffee & Jones, 2000).

Factor 1: Authenticity

- Q4 I am being myself when I communicate.
- Q5 I show a willingness to open up.
- Q9 I go deeper when communicating like talking about values and goals aside from basic topics.
- Q10 I make sure that my sharing is balanced when I speak with someone.
- Q11 I openly discuss issues and ask for clarity, which makes me feel empowered.
- Q13 I can articulate the problem clearly and concisely when communicating.
- Q14 I collaborate with others who have different ideas, experiences, and perspectives to generate alternatives to solve a problem.
- Q15 I share my analysis and feedback with others and solicit their opinions and insights to derive an informed and rational decision.
- Q16 I can communicate my decision and its rationale to others to gain support and commitment.
- Q20 I stick to the present topic.
- Q21 I look for areas of agreement.
- Q28 I try to remember details during a conversation to prove that I am paying attention to the speaker.
- Q29 I ask relevant questions to show interest in what the speaker says.
- Q30 I repeat or paraphrase what the speaker has said to show understanding.
- Q31 I ask for clarification to ensure that the correct message has been received.
- Q32 I reiterate the main points of a message clearly and logically, allowing the speaker to correct them if necessary.
- Q35 I keep my sense of humor during a conversation to relieve stress.

The second pillar focuses on the capacity to resonate with others' emotions to build meaningful connections. This includes putting oneself in another's shoes (Q3), maintaining eye contact to build trust (Q24), and using nonverbal cues, such as smiling, to ensure others feel comfortable (Q25). Unlike sympathy, empathy requires deep engagement in which one validates others' lived experiences, creating a sense of safety that encourages open expression (Everyday Speech, n.d.; Rogers, 1957). Empathetic communication directly improves the quality of social interaction by enhancing mutual understanding (Duan & Hill, 1996). This is

particularly vital for SHS students who often face affective barriers such as speaking anxiety, fear of judgment, and low self-confidence.

Factor 2: Empathy

- Q1 I think about what the person is feeling and how it affects what he or she says to me.
- Q3 I empathize with the person by putting myself in his or her shoes to understand what he or she is feeling.
- Q8 I stay focused during a conversation.
- Q12 I respect the opinions of others, regardless of whether they are opposed to my own, resulting in a welcoming environment.
- Q17 I acknowledge others' problems and interests.
- Q18 I listen to the other parties and know their interests to better understand.
- Q19 I offer an apology when appropriate.
- Q22 I allow the person who feels misunderstood to restate his or her point to feel understood.
- Q24 I maintain eye contact when communicating with someone to build trust and keep the conversation flowing.
- Q25 I wear a smile when conversing to show that I enjoy it and make the person feel comfortable.
- Q27 I pay attention to my tone and am conscious of how it affects other people.
- Q33 I take a moment to calm down before I jump back into the conversation.
- Q34 I stay patient when communicating with different people.

Sensitivity involves navigating social dynamics with care, such as respecting boundaries (Q6) and being mindful of personal space (Q26). It allows communicators to adapt their approach based on verbal and nonverbal cues to refine message delivery.

Sensitivity is closely linked to emotional intelligence and adaptability, requiring mindfulness of others' needs and emotional states (Hargie, 2016). By creating a safe space for vulnerability, sensitivity fosters authentic connections and helps students overcome hesitation stemming from unsupportive environments or fear of negative reactions (Brown, 2012; Aranda, 2022).

Factor 3: Sensitivity

Q2 I pay attention to my feelings and try not to let them get in the way of my message.

Q6 I respect people's boundaries by not pushing them to share things that they don't want to.

Q7 I wait for them to open up willingly.

Q26 I respect people's personal space, for every individual has different preferences about proximity and touch.

The integration of these three pillars addresses the "6 Cs" of message construction: clarity, correctness, conciseness, completeness, conscientiousness, and consideration, which served as the foundation for the initial item generation (Akilandeswari et al., 2015). These dimensions fulfill the mandate of the DepEd K to 12 Curriculum for SHS graduates to demonstrate 21st-century skills like communication and collaboration.

To ensure transparency, Table 5 traces the 18 items retained through the subsequent phases of analysis, mapping them from their original EFA numbering to their final positions in the validated scale.

Table 5

Traceability matrix of communication scale items

Original Item Content	Original Item # (EFA)	EFA Factor Assignment	CFA Retention Status	Final Scale Item #
I show a willingness to open up.	Q5	1	Retained (as CFA Q2)	1
I go deeper when communicating (values/goals).	Q9	1	Retained (as CFA Q3)	2
I can articulate the problem clearly.	Q13	1	Retained (as CFA Q6)	3
I collaborate with others to solve problems.	Q14	1	Retained (as CFA Q7)	4
I share analysis and feedback with others.	Q15	1	Retained (as CFA Q8)	5
I communicate decisions and rationale.	Q16	1	Retained (as CFA Q9)	6
I ask relevant questions to show interest.	Q29	1	Retained (as CFA Q13)	7
I ask for clarification to ensure understanding.	Q31	1	Retained (as CFA Q15)	8
I reiterate main points logically.	Q32	1	Retained (as CFA Q16)	9
I empathize by putting myself in their shoes.	Q3	2	Retained (as CFA Q19)	10
I stay focused during a conversation.	Q8	2	Retained (as CFA Q20)	11
I maintain eye contact to build trust.	Q24	2	Retained (as CFA Q26)	12
I wear a smile to make others comfortable.	Q25	2	Retained (as CFA Q27)	13

Original Item Content	Original Item # (EFA)	EFA Factor Assignment	CFA Retention Status	Final Scale Item #
I pay attention to my tone and its effects.	Q27	2	Retained (as CFA Q28)	14
I take a moment to calm down before jumping in.	Q33	2	Retained (as CFA Q29)	15
I respect boundaries (not pushing to share).	Q6	3	Retained (as CFA Q32)	16
I wait for them to open up willingly.	Q7	3	Retained (as CFA Q33)	17
I respect personal space and proximity.	Q26	3	Retained (as CFA Q34)	18

5.2. Construct Validity of the Effective Communication Scale

To establish the construct validity of the questionnaire, CFA was performed to test and re-examine the three latent factors, Authenticity, Empathy, and Sensitivity, identified in the exploratory phase. This process ensures that the observed variables (the items) accurately represent the theoretical data expected from the model.

The initial CFA was conducted on the 34 items retained after the EFA phase. As shown in Table 6, all factor loadings (both unstandardized and standardized) were statistically significant with p-values less than 0.001. This significance implies that the observed variables are indeed related to their corresponding latent factors.

Table 6

Factor loadings of the different items

Factors	Indicators	Estimate	Standardized Estimate	p-value
Factor 1	Q1	0.33	0.469	< .001
	Q2	0.573	0.574	< .001
	Q3	0.61	0.653	< .001
	Q4	0.404	0.541	< .001
	Q5	0.406	0.508	< .001
	Q6	0.536	0.64	< .001
	Q7	0.555	0.655	< .001
	Q8	0.531	0.616	< .001
	Q9	0.504	0.641	< .001
	Q10	0.445	0.463	< .001
	Q11	0.316	0.428	< .001
	Q12	0.408	0.56	< .001
	Q13	0.558	0.696	< .001

Factors	Indicators	Estimate	Standardized Estimate	p-value
	Q14	0.427	0.555	< .001
	Q15	0.54	0.692	< .001
	Q16	0.501	0.563	< .001
	Q17	0.307	0.364	< .001
Factor 2	Q18	0.497	0.672	< .001
	Q19	0.509	0.681	< .001
	Q20	0.624	0.69	< .001
	Q21	0.382	0.53	< .001
	Q22	0.4	0.581	< .001
	Q23	0.412	0.646	< .001
	Q24	0.358	0.483	< .001
	Q25	0.369	0.555	< .001
	Q26	0.516	0.544	< .001
	Q27	0.623	0.629	< .001
	Q28	0.619	0.68	< .001
	Q29	0.601	0.686	< .001
	Q30	0.484	0.605	< .001
Factor 3	Q31	0.459	0.521	< .001
	Q32	0.539	0.713	< .001
	Q33	0.57	0.78	< .001
	Q34	0.559	0.81	< .001

Despite the significance of the individual items, the overall model fit was evaluated using the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and the Root Mean Square Error of Approximation (RMSEA). As presented in Table 7, the initial model demonstrated a poor fit, with CFI and TLI values below 0.90 and an RMSEA greater than 0.08. These results indicated that the initial 34-item model did not adequately represent the observed data and therefore required further modification.

To improve the model, items with factor loadings below 0.5 were omitted. This ensures that the remaining items demonstrate a strong association with their respective factors. The final model retained 18 items. As shown in Table 8, the standardized estimates for these items range from 0.50 to 0.84, indicating a strong to extremely strong correlation with their latent factors.

Table 7*Fit measures for the model*

CFI	TLI	RMSEA	RMSEA 90% CI	
			Lower	Upper
0.729	0.710	0.0878	0.0797	0.0959

Table 8*Factor loadings of the revised model*

Factors	Indicators	Estimate	Standardized Estimate	p-value
Factor 1	Q2: I show a willingness to open up.	0.591	0.591	< .001
	Q3: I go deeper when communicating like talking about values and goals aside from basic topics.	0.636	0.681	< .001
	Q6: I can articulate the problem clearly and concisely when communicating.	0.554	0.662	< .001
	Q7: I collaborate with others who have different ideas, experiences, and perspectives to generate alternatives to solve a problem.	0.544	0.642	< .001
	Q8: I share my analysis and feedback with others and solicit their opinions and insights to derive an informed and rational decision.	0.51	0.591	< .001
	Q9: I can communicate my decision and its rationale to others to gain support and commitment.	0.515	0.655	< .001
	Q13: I ask relevant questions to show interest in what the speaker says.	0.563	0.702	< .001
	Q15: I ask for clarification to ensure that the correct message has been received.	0.505	0.647	< .001
	Q16: I reiterate the main points of a message clearly and logically, allowing the speaker to correct them if necessary.	0.505	0.568	< .001
Factor 2	Q19: I empathize with the person by putting myself in his or her shoes to understand what he or she is feeling.	0.449	0.601	< .001
	Q20: I stay focused during a conversation.	0.693	0.765	< .001
	Q26: I maintain eye contact when communicating with someone to build trust and keep the conversation flowing.	0.545	0.576	< .001

Factors	Indicators	Estimate	Standardized Estimate	p-value
	Q27: I wear a smile when conversing to show that I enjoy it and make the person feel comfortable.	0.686	0.693	< .001
	Q28: I pay attention to my tone and am conscious of how it affects other people.	0.688	0.756	< .001
	Q29: I take a moment to calm down before I jump back into the conversation.	0.617	0.704	< .001
Factor 3	Q32: I respect people's boundaries by not pushing	0.547	0.723	< .001
	Q33: I wait for them to open up willingly.	0.614	0.84	< .001
	Q34: I respect people's personal space, for every individual	0.541	0.784	< .001
	has different preferences about proximity			

The fit measures for this revised 18-item model, presented in Table 9, confirm a good fit with the observed data. Both the CFI (0.91) and TLI (0.90) reached the required thresholds, and the RMSEA (0.0716) indicates a reasonable approximate fit.

Table 9

Fit measures for the model

CFI	TLI	RMSEA	RMSEA 90% CI	
			Lower	Upper
0.91	0.90	0.0716	0.0536	0.0888

The construct validity is further supported by the significant interrelationships among the three latent dimensions. Table 10 presents the estimated factor covariances, all of which are statistically significant ($p < 0.05$).

The strongest correlation (0.787) exists between Authenticity and Empathy. This indicates that higher levels of self-reported authenticity are strongly associated with a greater capacity for empathy. Theoretically, this aligns with Social Penetration Theory, which posits that genuine self-disclosure and mutual trust are vital for successful relational engagement. In practical terms, when individuals model genuineness, they cultivate trust and encourage open self-expression in others. This is particularly critical in educational and social work settings, where authentic engagement is indispensable for building supportive, therapeutic, or cohesive classroom environments.

Table 10*Factor covariances of the different latent factors*

		Estimate	Standard Estimate	SE	p-value
Factor 1	Factor 1	1.000 ^a			
	Factor 2	0.787	0.787	0.0522	< .001
	Factor 3	0.437	0.437	0.0922	< .001
Factor 2	Factor 2	1.000 ^a			
	Factor 3	0.490	0.490	0.0901	< .001
Factor 3	Factor 3	1.000 ^a			< .001

^a fixed parameter

A moderate positive correlation (0.490) was found between Empathy and Sensitivity. This suggests that highly empathetic individuals are also likely to display greater sensitivity in their interactions. Such individuals are often more intuitive, noticing subtle signals like shifts in tone or body language that others might overlook. This emotional depth aligns with the Transactional Model of Communication, where effective communicators simultaneously process and adapt to feedback within their psychological environment.

Establishing the construct validity of this scale addresses a critical measurement gap in the literature, which often investigates communication variables in isolation rather than as a unified, holistic construct. By validating a tool that integrates authenticity, empathy, and sensitivity, this study provides a systematic framework for evaluating the multi-dimensional communication competence required of SHS graduates. The refined 18-item scale serves as an empirically validated instrument to inform targeted instructional practices and evaluate graduate outcomes in line with DepEd K to 12 21st-century skill mandates.

5.3. Internal Consistency and Reliability of the Questionnaire

To determine the internal consistency of the questionnaire, the researcher applied Cronbach's Alpha and evaluated CR and AVE. This multi-layered statistical approach ensures that the scale not only measures the intended constructs but does so with high precision and reliability.

As shown in Table 11, all three factors demonstrate strong internal consistency and reliability. Cronbach's alpha coefficients for all factors are greater than 0.8, signifying that the questions within each construct are effective and consistent measures.

Table 11*Construct validity and reliability*

Factors	Average Variance Extracted (AVE)	Composite Reliability (CR)	Cronbach's Alpha
Factor 1	0.4084	0.861	0.858
Factor 2	0.4709	0.841	0.837
Factor 3	0.6143	0.826	0.822

While the AVE for Factor 1 (0.4084) and Factor 2 (0.4709) falls slightly below the ideal 0.50 threshold, these dimensions were retained because their CR values (0.861 and 0.841, respectively) significantly exceed the 0.70 benchmark. According to established psychometric standards, a construct's convergent validity is considered adequate if the AVE is less than 0.5 and the CR is greater than 0.6. Consequently, all three factors are confirmed as reliable measures of their respective latent constructs.

Factor 3 (Sensitivity) demonstrates the highest convergent validity, explaining 61.43% of the variance in its observed variables. Although it consists of only three items, respecting boundaries, waiting for openness, and respecting personal space, its standardized factor loadings exceed 0.70, indicating an "extremely strong association" with the latent construct. However, the researcher notes that this three-indicator structure may limit the breadth of the "sensitivity" dimension. To more fully capture the "mindfulness of others' needs" described by Hargie (2016), future iterations of the tool could include items focused on emotional adaptability and receptivity to non-verbal cues.

The development of this 18-item scale addresses a critical measurement gap by providing an empirically validated tool specifically designed for SHS graduates. Existing literature suggests that while students may have basic language knowledge, they often struggle with "affective barriers" such as speaking anxiety, shyness, and fear of judgment.

By integrating Authenticity, Empathy, and Sensitivity, this scale aligns with the Transactional Model of Communication, viewing communication as a reciprocal and context-dependent process. Furthermore, the tool fulfills the DepEd K to 12 mandates that graduates demonstrate 21st-century skills such as communication and collaboration. The final scale, presented in Table 12, provides a comprehensive framework for evaluating the multi-dimensional competence required for higher education and career readiness.

Table 12*Developed scale for determining the effective communication level*

Criteria	Never	Seldom	Sometimes	Often	Always
A. Authenticity	1	2	3	4	5
1. I show a willingness to open up.	1	2	3	4	5
2. I go deeper when communicating like talking about values and goals aside from basic topics.	1	2	3	4	5
3. I can articulate the problem clearly and concisely when communicating.	1	2	3	4	5
4. I collaborate with others who have different ideas, experiences, and perspectives to generate alternatives to solve a problem.	1	2	3	4	5
5. I share my analysis and feedback with others and solicit their opinions and insights to derive an informed and rational decision.	1	2	3	4	5
6. I can communicate my decision and its rationale to others to gain support and commitment.	1	2	3	4	5
7. I ask relevant questions to show interest in what the speaker says.	1	2	3	4	5
8. I ask for clarification to ensure that the correct message has been received.	1	2	3	4	5
9. I reiterate the main points of a message clearly and logically, allowing the speaker to correct them if necessary.	1	2	3	4	5
B. Empathy	1	2	3	4	5
10. I empathize with the person by putting myself in his or her shoes to understand what he or she is feeling.	1	2	3	4	5
11. I stay focused during a conversation.	1	2	3	4	5
12. I maintain eye contact when communicating with someone to build trust and keep the conversation flowing.	1	2	3	4	5
13. I wear a smile when conversing to show that I enjoy it and make the person feel comfortable.	1	2	3	4	5
14. I pay attention to my tone and am conscious of how it affects other people.	1	2	3	4	5
15. I take a moment to calm down before I jump back into the conversation.	1	2	3	4	5
C. Sensitivity	1	2	3	4	5
16. I respect people's boundaries by not pushing them to share things they don't want.	1	2	3	4	5
17. I wait for them to open up willingly.	1	2	3	4	5
18. I respect people's personal space, for every individual has different preferences about proximity and touch.	1	2	3	4	5

6. Conclusion

This study successfully identified authenticity, empathy, and sensitivity as the three core dimensions of effective communication among Grade 12 Senior High School graduates.

Through a rigorous psychometric evaluation, an initial pool of 35 items was refined into a statistically sound 18-item scale. Confirmatory factor analysis (CFA) validated the proposed three-factor structure, indicating an acceptable overall model fit. The model yielded CFI = 0.91, TLI = 0.90, and RMSEA = 0.0716. The findings revealed that authenticity is strongly linked to empathy, while empathy is moderately related to sensitivity. These results suggest that encouraging authentic self-expression is an important first step toward building empathy, which then enhances a speaker's sensitivity to social and emotional cues.

The findings demonstrated strong construct validity and internal consistency, as all factors obtained Composite Reliability (CR) and Cronbach's alpha values above 0.80. This confirms that the scale is a reliable instrument for assessing graduate competencies beyond basic language skills. It also supports the "6 Cs" of communication and aligns with the DepEd K to 12 targets for developing 21st-century skills. By evaluating these dimensions, the tool provides a structured way to assess how students handle emotional challenges such as speaking anxiety and fear of judgment.

Although the 18-item scale demonstrated strong statistical performance, especially for the sensitivity dimension, which explained 61.43% of its variance, future research could expand the tool by adding items on emotional adaptability and non-verbal communication. Lastly, this study was limited to a single institution. Future research should test the scale with larger and more diverse populations across different cultural settings to determine its applicability in other academic and professional contexts.

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Institutional Review Board Statement

The study was conducted in accordance with the research ethics guidelines of the Research, Innovation, Extension, and Community Outreach (RIECO) of the University of Baguio. The paper underwent a systematic review. Participation was voluntary, informed consent was obtained from all participants, and confidentiality and anonymity were strictly maintained throughout the research process.

AI Declaration

The authors declare the use of Artificial Intelligence (AI) in writing this paper. In particular, the authors used ChatGPT to assist in language refinement, grammar checking, paraphrasing, and improving the clarity of the manuscript. The authors take full responsibility for the accuracy, integrity, and final content of the work, including all AI-assisted outputs.

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