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ORIGINAL RESEARCH

TRANSLATION AND CROSS-CULTURAL ADAPTATION OF GENERIC SKILL SELF-ASSESSMENT INSTRUMENT FOR INDONESIAN UNDERGRADUATE MEDICAL STUDENTS

Natalia Puspadewi[1*], Gisella Anastasia[1], Elisabeth Rukmini[2]
[1]Medical Education Unit, Atma Jaya Catholic University of Indonesia, School of Medicine and Health Sciences, Jakarta - INDONESIA
[2]Food Technology Department, Bina Nusantara University, Faculty of Engineering, Jakarta - INDONESIA

ABSTRACT

Background: There are various educational strategies that promote generic skills development in medical education; hence, there is a need for a valid and reliable instrument to assess them. This study aims to translate and adapt a generic skills self-assessment instrument developed by Groen et al.1 to assess Indonesian medical student's generic skills in a classroom context.

Methods: WHO's guidelines were used for the translation process, which consisted of: 1) forward translation, 2) expert panel review (using the Delphi method), 3) back translation, 4) pre-testing and cognitive interviews, and 5) the final version. Additional measures were employed to improve the translation accuracy, including proofreading (prior to step 2), expert panel review after step 3 and 4, and pilot testing along with psychometric testing after step 5. Backward translation was done by a professional translation service. Ten fourth-year students from Atma Jaya School of Medicine and Health Sciences were involved in step 4; meanwhile, we piloted the translated instrument to 35 other fourth-year students from the same sample pool. We also conducted an internal reliability test using Cronbach's alpha and construct validity test, including corrected total-item correlation and principal component analysis.

Results: Steps 1-3 produced an Indonesian version of the generic skills assessment instrument with good face and content validity. Quantitative data analysis showed high internal reliability (Cronbach's Alpha = .955) and acceptable item-total correlation (ranging from .345 to .757).

Conclusion: Factor analysis showed 6 domains labeled as analytical skills, teamwork, communication skills, perseverance, social judgment, and global abstraction skills.

PRACTICE POINTS

- Panel expert review is crucial in translating and adapting an instrument from another language.
- Awareness of the cultural differences that define the sociocultural context between the original and translated instrument are necessary.
- Communication, analytical thinking, teamwork, time management, and professional attitude are six identified generic skills domain in Indonesian medical education.

*corresponding author, contact: natalia.puspadewi@atmajaya.ac.id

INTRODUCTION

Generic skills, the core competencies applicable across disciplinary fields,[2] are skills necessary for future workers in any field to thrive in the competitive working environment to complement their job-specific skills and knowledge.[3-6] Examples of essential generic skills include critical thinking, organizational skills, mental flexibility, communication, interpersonal and teamwork skills, self-leadership, and digital literacy. Due to its importance, generic skills development has become one of higher education's primary objectives.[7]

Employers today value a vast array of generic skills. Approximately 90% of employers identified critical thinking abilities as "very" and "somewhat" important, yet only 39% of employers think that higher education graduates adequately possess this skill.[8] Teamwork is another skill desired by employers, as 93% of them viewed these as "very" and "somewhat" important, yet only 48% believed that fresh graduates are able to perform effectively in teams.[8] Particularly in the healthcare field, teamwork, intra- and inter-collaboration, as well as critical and logic-systematic thinking, are often sought from healthcare workers to improve healthcare delivery quality, cost-effectiveness, and efficiencies.[9] Further, critical and logic-systematic thinking also improves the accuracy of diagnosis-making and disease classification, determining the best and most appropriate therapy regiment, and reducing medical error rates.[10,11]

Noble professionalism (defined as professionalism that is based on one's faith in God Almighty), self-reflective, lifelong learner, and effective communicator are the essential characteristics expected from an Indonesian physician.[12] As such, developing generic skills associated with these characteristics becomes an inherent process of Indonesian formal medical education. Personalized feedback, flipped classrooms, reflective writing, and other student-centered learning approaches such as problem-based learning (PBL) and skills laboratory (SL) are often used as educational strategies to develop the aforementioned generic skills during the undergraduate medical education phase.[13,14] Unfortunately, those educational strategies are mainly used to facilitate students' medical knowledge and skills during the preclinical education phase, and thus the majority of available instruments to assess students' learning are not suitable to assess Indonesian generic skills development.

Groen et al.[1] proposed a self-assessment tool to observe the growth and development of medical students' generic skills. This instrument was adapted from the generic skills acquisition self-assessment questionnaire developed by Maastricht's University for the Bachelor of European Studies program.[15] Maastricht's self-assessment questionnaire was specifically designed to assess students' performance during problem-based learning. The items were all phrased in positive sentences—which may impact the questionnaire's applicability in a broader learning setting as well as rendering its construct validity due to the risk of response bias. The generic skills self-assessment instrument proposed by Groen et al. (2020) keeps most of the original statements while adding new items to assess soft skills beyond the PBL context, along with mixing negative phrase statements to stimulate students to be more critical in assessing their skills in hope to reduce the risk of response bias. The revised instrument consists of 33 statements referring to specific generic skills, each is scored using a 5-Likert scale. The items are grouped into five distinct domains deemed relevant in an active-learning context, including "Communication Skills" (6 items), "Analytical Thinking Skills" (7 items), "Teamwork Skills" (8 items), "Time Management Skills" (6 items), and "Professional Attitude" (6 items).

METHODS

We referred to the WHO guideline on translating and adapting an instrument.[16] The authors had acquired permission to use the instrument from Groen et al.[1] Ethical clearance was obtained from the Research Ethics Committee at Atma Jaya Catholic University of Indonesia. The WHO process consists of five stages: 1) forward translation, 2)

expert-panel, 3) back translation, 4) pre-testing and cognitive interviews, and 5) the final version. We added five stages to ascertain the accuracy of the translated instrument.

Step 1 – Forward Translation from English to Indonesian

Forward translation was done by GA, who had a background in medical education and at least 5 years of experience as a medical teacher.

Step 2 – First expert panel review

The initial translated instrument was then reviewed by an expert panel consisting of ER, NP, GA, and CC, who were all proficient in English and Indonesian. All members have a minimum of five years of experience as a mentor and educators in Medical Education and are involved actively in Medical Education Unit (MEU). They also had considerable experience in translating and developing instruments. The translated instrument was reviewed to consider the undergraduate medical students' perspective, the Indonesian sociocultural context, including the higher education learning culture in Indonesia, and medical terminology used in Indonesian medical schools. The expert panel put special attention on any potential conceptual discrepancies between the original instrument and the initial translation. Particularly, the panel considered the sociocultural discrepancies between Western and Eastern contexts in higher education and used Content Validity Index (CVI) to decide the relevance of each item using a 4-point Likert Scale, ranging from 1 (Not Relevant), 2 (Need Major Revision), 3 (Need Minor Revision), and 4 (Relevant).[17] The item was considered valid if the interrater agreement was at least 0.8. There were several items that repeatedly did not reach the minimum CVI score because one or more experts disagreed with the terminologies or words used in the translated version, as it might potentially change the concept and/or meaning of the original statement. Hence, the first expert panel review was conducted three times to discuss these controversial items.[17]

Step 3 – Proofreading

The authors used professional Indonesian translating and proofreading services with many experiences working on scientific manuscripts to proofread the initial translation that had gone through the first panel expert review.

Step 4 – Second expert panel review

The proofread result in step 3 was reviewed by the same expert panel in step 2. The purpose of this step was to ensure that the context remained unchanged during the translation process. All expert panels agreed with the proofread result, and no further changes were made.

Step 5 – Back translation

The same translating and proofreading service was employed to do the back translation.

Step 6 – Third expert Panel review

The back translation result in step 5 was reviewed and compared with the original instrument. This step was done to ensure translation accuracy.

Step 7 – Pre-testing and Cognitive Interviewing

We used an accidental sampling method to recruit the participants for this step, where we contacted students who shared similar characteristics with the target population for the pilot study to participate. We asked ten fourth-year students who were waiting to enter clinical rotation to fill in the instrument and provide feedback on the translation quality. The purpose of this step was to find out if the students could understand and appropriately fill out the translated self-assessment questionnaire. All participants signed an online informed consent prior to answering all questions in the self-assessment questionnaire independently. They were interviewed via phone calls or online meeting platforms (Microsoft Teams). Each participant was asked to comment on the instrument's readability and provide suggestions, if any, to improve

the translation. Participants were also asked to share their overall opinion on the generic skills assessment instrument.

Step 8 – Fourth expert panel review

The Fourth expert panel was done to review the suggestions collected in step 7. The panel mainly discussed the sentence structure (negative or positive phrasing), the scale measurement, and wording preference on several English expressions that were not often used in Bahasa Indonesia (example: questioning one's assumption).

Step 9 – Psychometric Testing

Steps 1-8 were parts of the content validity process where we sought to ensure the accuracy and quality of our translation qualitatively based on expert judgement. We then proceeded to pilot the translated instrument toward 35 (out of 36) fourth-year undergraduate medical students (5 male and 30 female students) that attended the Medical Education Elective Block at Atma Jaya Catholic University of Indonesia, School of Medicine and Health Sciences. This block was chosen for our pilot study because it employed active and collaborative learning using a project-based learning approach, which supported the development of students' generic skills. This block lasted for four weeks, beginning in the last week of August 2022 until the third week of September 2022. All participants were given an explanation of the study at the beginning of the block and were asked to provide their consent if they agreed to participate. Students were told that participation in this study was voluntary and would not affect their academic performance during the block. They were also told there would be no consequence for students who refused to participate.

After obtaining informed consent, participants were asked to fill in the self-assessment instrument online at the beginning (pretest) and the end (post-test) of the block. We combined the pre and posttest data (n = 70) to get a more representable sample size for the quantitative data analysis. We assume that the pre and post-test results would be different due to the impact of the block's learning activities; thus, we treated the pre and post-test results as different data points for the purpose of construct validation analysis and internal reliability test. We conducted Cronbach's Alpha test to measure the instrument's internal reliability along with corrected item-total correlation and confirmatory principal component analysis (PCA) to measure the construct validity. The questionnaire would be considered to have good internal reliability if the Cronbach's Alpha is > .70 and have a good corrected item-total correlation if the Pearson correlation coefficient (R value) for each item is > .232. All quantitative analysis was done using IBM SPSS ver. 22.

We hypothesize that each component in the generic skills assessment instrument has some degree of correlation with each other (for example, one's ability to communicate might impact one's ability to perform collaboration, gather necessary information for analysis in group learning, manage one's time, and perform one's responsibility professionally), therefore we used oblimin instead of orthogonal rotation during principal component analysis. KMO Bartlett's test of sphericity was conducted prior to performing PCA to check if the data had sufficient partial correlation for the PCA to be meaningful. Eigen value of > 1 was used as the cutoff point in determining the number of factors that existed in the translated questionnaire.

Step 10 - Final Version

Any revision made in step 9 became the final version of the Indonesian generic skills self-assessment for medical students. The validated instrument was then used to measure the generic skills of fourth-year medical students who participated in the Medical Education block for four weeks; the analysis and findings of this study will be published in a separate article. A schematic diagram depicting the translation and cross-cultural adaptation of the generic skills self-assessment instrument into Bahasa Indonesia is presented in Figure 1.
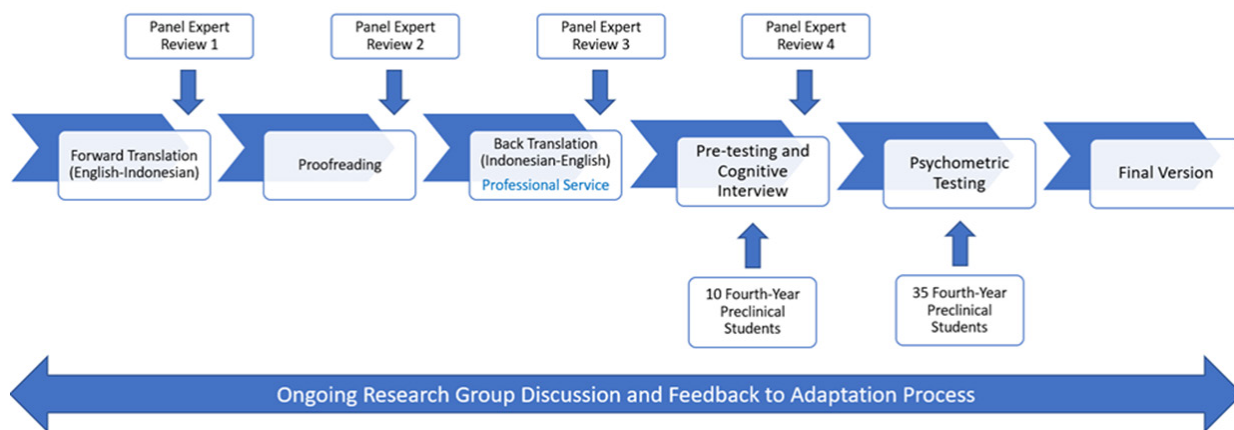
Figure 1. Cross Cultural Adaptation Process of Indonesian Generic Skills Self-Assessment for Medical Students

RESULTS AND DISCUSSIONS

The Indonesian translated instrument consisted of 33 items using 5-Likert scales, same as the original. Most changes were made to better reflect the Indonesian undergraduate medical education context. We changed the term "Tutorial" from the original version into "group discussions" to expand the instrument's applicability in various educational activities that encourage active learning. The term "speak up" and "fellow students" were also changed into "give opinion" and "group peers" to suit the group discussions context. Authors simplified some items to improve participants' understanding. Detailed changes in Indonesian translated versions are summarized in Table 1.

Table 1. Comparison between The Original and Indonesian Version of generic Skills Self-Assessment Instrument (Cronbach's Alpha = .955)

Item number	Original version	*Indonesian version*	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
	Communication Skills	***Keterampilan Komunikasi***		
1	I raise questions in case issues remain unclear.	*Saya mengajukan pertanyaan jika masalah belum jelas.*	.560	.954
2	My fellow students regularly fail to understand my contributions.	*Teman kelompok saya sering kali tidak menghargai kontribusi saya (My group peers often do not appreciate my contributions).*	.345	.956
3	I actively listen to my fellow students.	*Saya secara aktif mendengarkan teman kelompok (I actively listen to my group peers).*	.644	.953
4	I face difficulties summarizing other students' contributions.	*Saya kesulitan dalam menyimpulkan kontribusi teman kelompok (I have difficulties summarizing my group peers' contributions).*	.454	.955
5	I am often nervous to speak up.	*Saya sering gugup untuk mengajukan pendapat (I am often nervous to give opinion).*	.374	.956
6	As chair, I am able to create a productive, collaborative atmosphere	*Sebagai ketua, saya mampu menciptakan suasana yang produktif dan kolaboratif (As chair, I am able to create a productive and collaborative atmosphere).*	.629	.953

Item number	Original version	Indonesian version	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
	Analytical Skills	*Keterampilan Analisis*		
7	I am comfortable questioning my assumptions and views.	*Saya nyaman mempertimbangkan asumsi dan pandangan saya (I am comfortable considering my assumptions and views).*	.647	.953
8	I find the phrasing of a clear problem statement difficult.	*Saya kesulitan menyusun pernyataan masalah dengan jelas (I have difficulties making a clear problem statement).*	.685	.953
9	I provide relevant examples or counter examples.	*Saya dapat memberikan contoh yang relevan atau berlawanan (I can provide relevant or counter examples).*	.683	.953
10	I know whether or not the post-discussion has covered all issues raised during the pre-discussion.	*Saya dapat menyadari seluruh masalah yang diutarakan di awal diskusi telah dibahas (I can realize all the issues raised at the beginning of the discussion have been discussed).*	.735	.952
11	I link the topic of the assignment to my pre-knowledge.	*Saya menghubungkan topik tugas ke pengetahuan dasar saya.*	.741	.952
12	I find it challenging to critically reflect on what I have read.	*Saya kesulitan berefleksi secara kritis apa yang telah dibaca (I have difficulties to critically reflect on what I have read).*	.688	.953
13	I find it challenging to critically reflect on discussions in the tutorial.	*Saya kesulitan berefleksi secara kritis diskusi dalam kelompok (I have difficulties to critically reflect on discussions in group)*	.725	.952
	Teamwork	*Kerja sama*		
14	I stimulate other students to participate.	*Saya menstimulasi mahasiswa lain berpartisipasi.*	.757	.952
15	I support the group in- and outside of the formal tutor meeting.	*Saya mendukung kelompok di dalam dan di luar pertemuan formal berupa kelas atau diskusi (I support the group in- and outside of the formal meeting in the form of classes or discussions).*	.678	.953
16	I learn more from self-study than from my peers.	*Saya dapat memahami materi dengan lebih baik saat belajar mandiri dibandingkan saat belajar bersama.*	.638	.953
17	I suggest interventions to improve group dynamics.	*Saya menyarankan intervensi untuk meningkatkan dinamika kelompok.*	.598	.953
18	I encourage fellow students to come up with additional, complementary or opposing views.	*Saya mendorong sesama mahasiswa menyampaikan pandangan tambahan, pelengkap, atau berlawanan.*	.743	.952
19	I support the role of the chair and the whiteboard worker during classroom discussions.	*Saya mendukung peran ketua dan sekretaris selama diskusi kelompok (I support the role of the chair and secretary during group discussions).*	.664	.953
20	I find it challenging to reflect upon group dynamics.	*Saya kesulitan merefleksikan dinamika kelompok (I have difficulties to reflect upon group dynamics)*	.693	.953

Item number	Original version	Indonesian version	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
21	I am able to draw on cultural differences to improve the quality of the tutorial.	*Saya dapat memanfaatkan perbedaan latar belakang budaya untuk meningkatkan kualitas kelas atau diskusi (I am able to utilize the cultural differences to improve the quality of classes or discussions).*	.674	.953
	Time Management Skills	***Keterampilan manajemen waktu***		
22	I regularly have to work into the night to cover the material.	*Saya biasanya harus belajar hingga malam untuk menyelesaikan materi (I usually have to study late at night to finish the material).*	.646	.953
23	I sometimes come unprepared to group meetings.	*Saya terkadang datang tanpa persiapan untuk diskusi kelompok (I sometimes come unprepared to group discussions).*	.602	.953
24	I possess time management skills, for example as chair of a meeting.	*Saya menguasai keterampilan manajemen waktu, misalnya sebagai ketua kelompok atau diskusi (I possess time management skills, for example as chair of group or discussions).*	.680	.953
25	I find it difficult to set clear priorities in my learning process.	*Saya kesulitan menetapkan prioritas yang jelas dalam proses belajar (I have difficulties to set clear priorities in the learning process).*	.663	.953
	Professional Attitude	***Perilaku Profesional***		
26	I plan ahead and anticipate future workload.	*Saya merencanakan dan mengantisipasi beban kerja yang akan datang.*	.608	.953
27	I divide tasks and responsibilities.	*Saya membagi tugas dan tanggung jawab.*	.689	.953
28	I respect all contributions to the group process.	*Saya menghormati kontribusi semua anggota dalam diskusi kelompok (I respect the contributions of all members in the group discussions).*	.568	.954
29	I find it difficult to confront my weaknesses.	*Saya kesulitan menghadapi kelemahan saya (I have difficulties to confront my weaknesses).*	.563	.954
30	I inform my tutor timely in case of absence or non-preparation.	*Saya segera memberi tahu tutor bila tidak dapat hadir atau belum siap mengikuti diskusi (I immediately notify the tutor if I am unable to attend or not ready to participate in the discussion)*	.536	.954
31	I inform my fellow students timely in case of absence or non-preparation.	*Saya segera memberi tahu teman kelompok bila tidak dapat hadir atau belum siap mengikuti diskusi (I immediately notify a group friend if I am unable to attend or not ready to participate in the discussion).*	.563	.954
32	I sometimes show my frustrations about the learning process.	*Saya terkadang menunjukkan frustasi selama proses belajar (I sometimes show my frustrations during the learning process)*	.483	.954
33	I actively ask for feedback from my peers and my tutor	*Saya secara aktif meminta umpan balik dari teman dan tutor atau dosen (I actively ask for feedback from peers and tutors or lecturers).*	.604	.953

We expanded the WHO's steps in translating and adapting an instrument by adding five extra steps. Each additional step had different concerns and purposes. We did the first expert panel three times to get the CVI above 0.8. The first discussion centered around finding appropriate words and Indonesian expressions to make the instrument more readable for Indonesian medical students. For example, we rephrased "I find the phrasing of a clear problem statement difficult" into "I have difficulty making a clear problem statement", and "I find it challenging to critically reflect on what I have read" into "I have difficulty reflecting critically on what I have read". This discussion edited 20 out of 33 items.

The second discussion focused on adapting the instrument to assess generic skills during mentor-led group discussions in project-based learning instead of a problem-based learning approach. We revised 13 out of 33 items to better reflect the learning interactions and group dynamics used in our setting while also deliberating on any possible cultural differences. Item no. 17 "I suggest an intervention to promote group dynamics" caused controversy during this second discussion. Two experts considered the influence of Indonesian sociocultural context on students' learning tendencies and claimed that Indonesian students typically chose to be passive during the teaching and learning activities. This situation might cause the term "intervention" to be irrelevant in assessing students' teamwork skills. This argument was debated by the other two experts who pointed out that there was not enough empirical evidence to support that claim. In the end, we kept the term "intervention" because it represented a higher and more specific form of group communication skill.

Still focusing on the Indonesian sociocultural context, the last discussion was centered to tackle irrelevant items that needed major revision to better reflect our sociocultural context. For example, item no. 32 "I sometimes show my frustrations about the learning process" were considered irrelevant in Indonesian culture. The expert panel expressed contradicting arguments, where some panels agreed with the original version, while the rest disagreed. The panel members who disagreed pointed out that

in Asian culture, students/"juniors" rarely showed frustration in public; hence, this would prevent participants from acknowledging this statement and propelled them to choose a normative answer. Similar to the previous debate, the panel agreed to keep the original version since there was not enough empirical evidence that supported the argument. At the end of the third discussion, we got a 0,99 CVI and considered the translated instrument to have great content and face validity.

In the proofreading step (step 3), 24 out of 33 items were adjusted with the Indonesian language's grammar. Most of the items were simplified by removing adjectives or verbs, such as "masalahnya masih belum jelas" (the issue is not yet clear) vs. "masalahnya tidak jelas" (the issue is unclear) and "saya merasa nyaman" (I am feeling comfortable) vs. "saya nyaman" (I am comfortable). At the third expert panel (step 6), eight out of 33 items were further discussed due to the slight deviation in meaning from the original version, such as the word "understand" vs. "appreciate", "draw" vs. "adapt", and "possess" vs. "master". These words have many synonyms in Bahasa Indonesia, so the expert panel focused on selecting words with the most similar meaning in context.

After the third expert panel review, we asked selected students to provide feedback on the readability of the translated instrument (step 7). All the participants in step 7 agreed that the instrument was easy to understand. Seven out of ten participants suggested changing the scale into "strongly disagree" until "strongly agree" instead of "This is a skill that definitely needs further training" until "I am fully capable of doing this". They argued that the original scales were confusing, hence they proposed to simplify the scale to assist them in filling out the self-assessment. Further, the original scale caused two participants to misinterpret the items due to the negative phrasing (for example, item no. 4 "I face difficulties summarizing other students' contributions"). Aside from the negative phrasing, there were other items that were misinterpreted by the participants because those items were unusual expressions in Bahasa Indonesia. For example, item no. 7 "I am comfortable questioning my assumptions and views" was misunderstood by two participants,

where one participant defined the item as reflecting their assumptions, while the other did not understand what this item meant at all. Item no. 10 "I know whether or not the post-discussion has covered all issues raised during the pre-discussion" was also misinterpreted by two participants. One participant thought of this item as a skill to summarize the discussion, while the other defined it as a skill to know whether they have discussed all the Learning Objectives or not. Lastly, the word "intervention" was misinterpreted by one participant as "feedback", while the word "group dynamics" was misinterpreted by another participant as "differences within the group".

Despite the feedback obtained from participants' interview, the expert panel agreed not to turn the negative into positive sentences to keep the translated version as close to the original version. The expert panel also agreed not to change the rating scale due to similar reasons. The word "summarizing" was kept despite being misinterpreted by the participants because it was the formal translation in Bahasa Indonesia. The expert panel changed the item "questioning my assumptions and views" into "reviewing my assumptions and views" and item "I know whether or not the post-discussion has covered all issues raised during the pre-discussion" into "I realize all the issues raised at the start of the discussion have been discussed" to eliminate the misinterpretations. Other words mentioned in the previous stage were still translated according to the dictionary.

Internal Reliability and Construct Validity

The Cronbach's Alpha of the 33 items is .955, indicating that this instrument has great internal consistency. We then continued to check the corrected item-total correlation of each item and found that the value ranges from .345 to .757. This result showed that each item had a moderate to relatively good discriminant validity. The details of the reliability statistics are presented in Table 1.

The KMO Bartlett's test indicated that the instrument has good partial correlation (KMO = .849, p < .000) and hence it was plausible to do confirmatory PCA using our dataset. We employed oblimin rotation to transform the vectors during our PCA and found 6 instead of 5 components suggested in the original instrument. Component 6 had a moderate negative correlation with component 1, 2, and 3 (r = -.502, r = -.413, and r = -.363 respectively) and a weak negative correlation with component 4 and 5 (r = -.134 and r = -.054 respectively). This negative correlation was also reflected in the factor loading for each item in component 6, which was indicative of a true negative correlation. On the other hand, component 5 had a weak negative correlation with factors 1, 3, 4, and 6 (r = -.189, r = -.116, r = -.066, and r = -.054 respectively) and a positive weak correlation with factor 2 (r = .187). However, the items grouped in component 5 had a positive factor loading value; hence, we decided to treat component 5 as having a positive correlation. On the other hand, component 1 had a moderate correlation (r = .515) with component 3 and a moderate reversed correlation with component 6 (r = -.502). Component 2 also had a moderate reversed correlation with component 6 (r=-.413). The details of the component correlation matrix are presented in Table 2.

Table 2. Component Correlation Matrix of Indonesian Generic Skills Self-Assessment

Component	1	2	3	4	5	6
1	1.000	.220	.515	.175	-.189	-.502
2	.220	1.000	.243	.033	.187	-.413
3	.515	.243	1.000	.167	-.116	-.363
4	.175	.033	.167	1.000	-.066	-.134
5	-.189	.187	-.116	-.066	1.000	-.054
6	-.502	-.413	-.363	-.134	-.054	1.0

We further analyzed the grouping of each item in the instrument according to its correlation value toward the 6 available components and compared it with the generic skills domain suggested in the original instrument. Overall, we retained analytical (component 1), teamwork (component 4), and communication (component 4) skills in the new grouping of generic skills domain, as shown in table 2. Component 2, 5, and 6, on the other hand, did not closely reflect the original generic skills domain and hence needed a new name. NP, ER, and GA met to discuss the naming of these new domains based on the intrinsic characteristics of items in each component related to generic skills. Component 2 reflected students' ability in coping with emerging academic issues, component 5 reflected students' ability to judge others and perceive others' judgement toward them, while component 6 reflected students' ability to think in a global framework. We named these new domains as perseverance skill, social judgement skill, and global abstraction skill respectively (see table 3).

Table 3. Comparison of The Generic Skills Domain between The Original and Adapted Version

Domain	Item Number	Original Domain
Analytical Skill (9 items)	7, 9-11	Analytical Skill
	14, 17, 21	Teamwork Skill
	27	Time Management Skill
	33	Professional Behavior
Perseverance Skill (4 items)	5	Communication Skill
	23	Time Management Skill
	29, 32	Professional Behavior
Teamwork Skill (7 items)	3	Communication Skill
	15, 18, 19	Teamwork Skill
	28, 30, 31	Professional Behavior
Communication Skill (3 items)	1, 6	Communication Skill
	16	Teamwork Skill
Social Judgement Skill (2 items)	2, 3	Communication Skill
Global Abstraction Skill (8 items)	8, 12, 13	Analytical Skill
	20	Teamwork Skill
	22, 24-26	Time Management Skill

This paper described the cross-cultural adaptation and psychometric testing process of the Indonesian version of Generic Skills Self-Assessment for Medical Students that was proposed by Groen et al.[1] Initially, we meant to only translate the instrument into Bahasa Indonesia to keep the meaning of each item as close as possible to the original instrument as well as to simplify the process. Most of the changes we made during translation included simplifying the English terms and expressions. Hence, finding suitable words that closely resemble the original meaning is the main focus of the expert panel reviews.

During the translation process, several items were carefully reviewed to make them more relevant to Indonesian students. Item no. 7 (challenging own assumption), 17 ("intervention"), and 32 (showing frustration) were the most challenging items that were discussed intensely during the expert panel reviews due to potential sociocultural discrepancies that might create additional challenges for students during their self-assessment. For example, item no. 17 asks about student's ability to suggest an intervention to improve the group's dynamic. Merriam-Webster defines "intervention" as an active act of interfering to improve a situation. This is not a familiar concept for most Indonesian students, who typically value creating balance and harmony within the social structure.[18] On the contrary, creating an intervention might be considered an unwanted behavior as it may potentially disrupt social harmony,[18] hence students might provide a contradicting answer on this item. One expert suggested changing the word 'suggesting intervention' to 'suggesting ideas', however after further deliberation, we decided to keep the original wording as it reflected a higher degree of critical thinking skill that involves structured problem solving, logical reasoning, mental flexibility as well as interpersonal skills to improve team effectiveness.[4]

Like most Asian students, the Indonesian culture of respecting the elders and 'keeping face' makes Indonesian students to be susceptible to feel ashamed and reluctant to show their weaknesses.[19–21] This situation layered a different translation issue on item no. 32 "I sometimes show my frustrations about the learning process". All experts and cognitive interview participants agreed that the translation for

this item was suitable and it was easy to understand. However, there was a concern that students might consider this a weakness (unacceptable behavior), whereas the original statement referred to this as the student's ability to be self-conscious of their weaknesses (acceptable behavior). Students might give normative answers when filling in the self-assessment instrument, which might alter the professionalism construct of the original instrument. A common issue with translating a document using forward and backward translation technique is that we risk doing a literal translation that may impair the natural expression in the target language.[22] An iterative process involving repeated reviews by the experts (who are proficient in the original and target language) and the target population is considered a more superior quality control measure in translating an instrument.[22] Particularly in the healthcare field, a cross-cultural adaptation of an instrument is preferred to translation to better reflect the value and meaning behind the construct being measured by the instrument.[23] However, this process indirectly influences the validity and reliability of the adapted instrument, and hence psychometric testing is encouraged to ensure the instrument's quality in measuring the intended construct.[23]

The psychometric testing more or less confirmed the need for cross-cultural adaptation of the instrument. Despite a high internal consistency (Cronbach's Alpha > 0.8), there were items that had relatively low item-total correlation, including item no. 2 "My group peers often do not appreciate my contributions" (r = .345), item no. 5 "I am often nervous to give an opinion" (r = .374), and item no. 32 "I sometimes show my frustrations during the learning process" (r = .483). The low r value of these items may suggest that these items were less relevant in measuring the generic skills construct for Indonesian students compared to other items in the instrument.[24]

Considering that factor analysis was not done on the original instrument, we conducted an exploratory instead of confirmatory factor analysis using principal component analysis. Results from this analysis reveal a more interesting result for further discussion. We found 6 instead of 5 generic skills domains, resulting in the reclassification of

item questions in this instrument. Further, we also found that teamwork, analytic, and communication skills seemed to be highly correlated. In particular, analytical skill has a moderate correlation with the teamwork domain (r = .515), which may suggest that Indonesian students' ability to analyze problems tend to be better when they were in a group situation, provided that the group functions properly.[25]

On the other hand, the communication skills domain has a weak to moderate-weak correlation with the rest of the generic skills domains (r-value ranging from -.134 - .167). However, items representing communication skills from the original instrument can be found in 4 other new generic skills domains. This finding may seem contradictory at first, but further analysis of Indonesian collectivist culture may provide a new perspective on this idiosyncrasy. Collectivist culture puts emphasis on high-context communication, where non-verbal cues and contextual and physical information play an important role in daily conversations.[25] The importance of non-verbal communication is reflected in the social judgment domain, where students' ability to perform social judgment hinges on their ability to read the non-verbal cues as well as contextual and physical information. Communication skills are also one of the most highly regarded soft skills towards facilitating efficient teamwork and thus have a significant impact on the team performance.[26,27]

Another intriguing finding is that all of the items in the perseverance domain relate to students' reluctance to admit their weaknesses in public. In a collectivist country, such as Indonesia, people tend to 'save face' by avoiding making mistakes or going against the norm ('trespasses') in public.[20,25] Further, students may feel obligated to do their best in a team situation to save their group's face. This might explain why items in this domain relate to one's ability to deal with problems in a group setting (i.e, speaking up, being unprepared during a discussion, showing frustration). In the original instrument, these items illustrate one's ability to acknowledge and confront their weaknesses (professional behavior). It might not be too farfetched to conclude that professional behavior in Indonesia has two dimensions, the personal and the communal dimension.

CONCLUSION

Through this article, we attempt to describe the translation, validation, and adaptation process of the Generic Skills Self-Assessment Instrument to better suit the Indonesian undergraduate medical education context. Rigorous attempts at maintaining the translation accuracy while making appropriate adjustments based on Indonesian sociocultural context were made during the face and content validity process through numerous reviews by the expert panel at each step of the translation stages. The psychometric measurement of the translated instrument showed good construct validity, indicating that this instrument is capable of reflecting and assessing Indonesian undergraduate medical students' generic skills. Nevertheless, considering the limited sample size used to measure the construct validity, further studies are needed to further confirm the six new domains as parts of the necessary skills that represent the generic skills construct in the Indonesian context. Furthermore, several domains in the adapted instrument only have two or three statements to explain or assess the construct. It might be prudent to conduct another item development to ensure that each domain can be adequately represented by the items in the instrument.

RECOMMENDATION

Several domains in Indonesian generic skills self-assessment only consist of two to four items. It might be prudent to further develop the items in these domains to better reflect perseverance, social judgement, and communication skills. Further, confirmatory factor analysis should also be conducted in future research to verify the domain structure of generic skills observed variables represented in this adapted instrument.

COMPETING INTEREST

The authors declare that there are no competing interests related to the study.

LIST OF ABBREVIATIONS

CVI   : Content Validity Index
KMO test : Kaiser-Meyer-Olkin test
MEU   : Medical Education Unit
PBL   : Problem-Based Learning
PCA   : Principal Component Analysis
SL   : Skills Lab
WHO   : World Health Organization

AUTHORS' CONTRIBUTION

Natalia Puspadewi – substantial contribution on study conception and design, data analysis and interpretation, drafting and critically reviewed the article

Gisella Anastasia – substantial contribution on study conception, data acquisition, data analysis, drafting the article

Elisabeth Rukmini – substantial contribution on study conception and design, data interpretation, critically reviewed the article

REFERENCES

1. Groen A, Bijsmans P, Adriaensen J. Improving a self-assessment tool to monitor generic skills development in an active learning environment. Eur Polit Sci. 2020; 19: 352–66.

2. Virtanen A, Tynjälä P. Factors explaining the learning of generic skills: a study of university students' experiences. Teach High Educ. 2018;

3. AbuJbara NK, Worley JA. Leading toward new horizons with soft skills. Horiz. 2018; 26(3): 247–59.

4. Future-citizen skills | McKinsey [Internet]. [cited 2023 Mar 15]. Available from: https: //www. mckinsey.com/industries/public-and-social-sector/our-insights/defining-the-skills-citizens-will-need-in-the-future-world-of-work

5. Gruzdev MV, Kuznetsova IV, Tarkhanova IY, Kazakova EI. University Graduates' Soft Skills: The Employers' Opinion. Eur J Contemp Educ. 2018; 7(4): 690–8.

6. Yao CW, Tuliao MD. Soft skill development for employability: A case study of stem graduate students at a Vietnamese transnational university. High Educ Ski Work-Based Learn. 2019.

7. Tuononen T, Hyytinen H, Kleemola K, Hailikari T, Männikkö I, Toom A. Systematic review of

learning generic skills in higher education-enhancing and impeding factors. In: Frontiers in education. Frontiers; 2022. p. 328.

8. Finley A. How College Contributes" to" Workforce Success: Employer Views on What Matters Most. Assoc Am Coll Univ. 2021;

9. Puente AE. The journal of interprofessional education & practice: the future of healthcare today. J Interprofessional Ed Pr. 2015; 1(1): 3–4.

10. Chan ZC. A systematic review of critical thinking in nursing education. Nurse Educ Today. 2013; 33(3): 236–40.

11. Hayes MM, Chatterjee S, Schwartzstein RM. Critical thinking in critical care: five strategies to improve teaching and learning in the intensive care unit. Ann Am Thorac Soc. 2017; 14(4): 569–75.

12. Konsil Kedokteran Indonesia. Standar Kompetensi Dokter Indonesia Edisi Kedua. 2012.

13. Gilligan C, Powell M, Lynagh MC, Ward BM, Lonsdale C, Harvey P, et al. Interventions for improving medical students' interpersonal communication in medical consultations. Cochrane Database Syst Rev. 2021 Feb 9; 2021(2): CD012418.

14. Ramnanan CJ, Pound LD. Advances in medical education and practice: student perceptions of the flipped classroom. Adv Med Educ Pract. 2017 Jan 13; 8: 63–73.

15. Adriaensen J, Bijsmans P, Groen A. Monitoring generic skills development in a bachelor European studies. J Contemp Eur Res. 2019; 15(1): 110–27.

16. WHO. Process of translation and adaptation of instruments [Internet]. 2003 [cited 2019 Jun 18]. Available from: https://www.who.int/substance_abuse/research_tools/translation/en/

17. Tiew LH, Creedy DK. Development and preliminary validation of a composite Spiritual Care-Giving Scale. Int J Nurs Stud. 2012; 49(6): 682–90.

18. Author. Professional identity formation of Indonesian undergraduate students [Doctoral Dissertation, University of Rochester]. ProQuest Diss Theses Glob. 2022;

19. Ginting D, Djiwandono PI, Woods R, Lee D. Is autonomous learning possible for asian students? The story of a mooc from Indonesia. Teach Engl Technol. 2020; 20(1): 60–79.

20. Mulyanto M, Sujiatmoko AH. EFL Learners' Cultural Perspectives towards Online Learning through Flipped Classrooms in Indonesia for Facing 4.0 Industry Era. J Soc Sci. 2022; 3(5): 918–28.

21. Lengkanawati NS. Exploring EFL learner autonomy in the 2013 Curriculum implementation. Indones J Appl Linguist. 2019; 9(1): 231–40.

22. Stansfield CW. Test translation and adaptation in public education in the USA. Lang Test. 2003; 20(2): 189–207.

23. Maneesriwongul W, Dixon JK. Instrument translation process: a methods review. J Adv Nurs. 2004; 48(2): 175–86.

24. Wang M, Batt K, Kessler C, Neff A, Iyer NN, Cooper DL, et al. Internal consistency and item-total correlation of patient-reported outcome instruments and hemophilia joint health score v2. 1 in US adult people with hemophilia: results from the pain, functional impairment, and quality of life (P-FiQ) study. Patient Prefer Adherence. 2017; 1831–9.

25. Hofstede G, Hofstede GJ, Minkov M. Cultures and organizations: Software of the mind. Vol. 2. Mcgraw-hill New York; 2005.

26. Prada ED, Mareque M, Pino-Juste M. Teamwork skills in higher education: is university training contributing to their mastery? Psicol Reflex E Crítica. 2022; 35.

27. Lin HY, You J. Teamwork-Performance Prediction by Using Soft Skills and Technological Savvy Skills. J Univ Teach Learn Pract. 2021; 18(8): 9.