

ELECTRONIC RUBRIC SOCIAL SKILLS (ERSS) FOR VOCATIONAL SCHOOLS

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Abstract

This study discussed the use of electronic rubrics in assessing student competencies specifically in social skills. The fourth industrial revolution has brought about many changes in how the world operates including in the education field. The fourth industrial revolution era was marked by the ubiquitous use of information and computer technology. This study used a literature review as a research method by considering various aspects ranging from the scope or theme of the study, the year, and the research approach related to this research. This research focused on how to evaluate learning programs using e-rubric particularly discussed how the e-rubric could be used in education to assess student skills and performance. This research was based on the premise that electronic rubrics could be used effectively as an evaluation tool in education and could help improve the quality of the learning process and learning outcomes. This study provides a specific analysis of the e-rubric and briefly reports various practices of using the e-rubric in the education sector, especially during the evaluation process in the tourism sector. The electronic rubric produces information of sufficient quality which is clear and transparent. Evidence about the effect of using the electronic rubric on overall performance results is positive feedback in finding out the learning outcomes of the students social in tourism expertise.

Keywords: Electronic rubric, Evaluation learning, Social skills.

1. Introduction

The changes and shifts that occurred in the era of the industrial revolution are rapid and massive [1], that also impacts the education sector significantly [2]. In particular, vocational education is distinctive to the notion of association and interaction between schools and industry, such that different industry developments can have an effect on vocational education [3]. Industry needs are currently oriented towards various abilities ranging from hard skills to soft skills. Social skills are one of the goals that the industry requires.

As an institution that prepares graduates according to the industrial needs, vocational education should emphasize the needs and requirements of industry in every education that occurs in schools [4]. This has become a new qualification in the industry and a challenge amid the era of disruption in this fourth industrial revolution [1]. Industry needs, therefore, become a priority in preparing vocational education graduates who are ready to fulfil industrial qualifications, including social skills that are in line with industry needs are also a priority. Tourism is one of the sectors affected by the disruption phenomenon in the era of the industrial revolution 4.0. Thus, it is important to pay attention to the needs of the tourism sector in order to fulfil the requirements of the tourism industry.

Education assessment is carried out with legitimate standards and can be evaluated as a prerequisite. There are various instruments used to assess learning outcomes [5, 6] and as one of the goals in the tourism industry, social skills need to provide a formula to measure outcomes or assess learning outcomes. Electronic Rubrics (E-Rubrics) is an effective method of modernization of learning assessment tools [7], where it is important to be able to make fair, direct, transparent, accurate, and consistent feedback assessments for the evaluation of learning results [8]. In order to prepare good social skills, high quality and standardized measurement and assessment tools are needed which can then be applied in vocational education as an attempt to prepare graduates in line with the needs and demands of the industry particularly the tourism industry.

2. Theoretical Framework

2.1. Analysis data

The use of rubrics as a learning assessment tool is considered relatively productive because rubrics can provide equal, clear, transparent, reliable, and consistent assessment feedback [8]. Modernization has paved the way for adapting paper rubrics into electronic rubric form. The existence of an electronic rubric allows for timely feedback in the evaluation process. The electronic rubric is shown to be more effective in defining criteria in terms of improving student performance and improving teaching quality [9]. The electronic rubric is also useful as a formative evaluation that is important for evaluating learning with a competence-based approach. In other words, the electronic rubric can be evidence of the acquisition and grading of competency levels through systematize subjective assessments method [10].

It is very important to pay attention to issues of transparency, accreditation, and student achievement to establish an electronic rubric in an educational setting. In simple terms, an electronic rubric must be capable of handling and showing a defined and structured achievement in the student record. There are aspects that facilitate the use of the electronic rubric in the assessment process which include

planning and preparation, the learning environment, teaching, and professional responsibilities [11]. The electronic rubric can be categorized into two types, namely analytic and holistic.

In the analytic rubric, a score is given on each dimension that is being evaluated in the assessment process. This type of analytic rubric is effective in providing classification because it can provide information to identify strength and weakness criteria. While the assessment in a holistic rubric usually includes a single overall assessment to assess the quality of performance. Holistic rubrics are used as a quick way to provide a thorough evaluation of the object or behavior being assessed [11]. Some researchers [11] suggested the seven basic steps in developing a rubric which are:

- (1) establishing preliminary decisions to define dimensions of performance by re-examining learning objectives,
- (2) determining the specific observable attributes that are expected from students,
- (3) clustering similar attributes into a single category,
- (4) describing what each dimension encompasses and determining expectation for the highest and lowest responses for each dimension,
- (5) developing a continuum such as numeric, descriptive, or holistic scales,
- (6) evaluating student work as examples to determine the attributes of quality performance, and
- (7) testing the validity and reliability of the rubric in relation to student learning outcomes.

The use of rubrics not only helps to measure student performance objectively but also helps to identify gaps [12]. Advances in technology and the internet have resulted in the development of an increasingly sophisticated and multiplatform-based electronic rubric, starting from web-based to Android-based platforms [13]. There are many advantages that can be achieved from multiplatform-based electronic rubrics at present. One of the benefits that can be identified is that the electronic rubric can adjust the components of the indicator. In addition, the electronic rubric can also include quantitative and qualitative dimensions of assessment [14]. The evaluation process is more practical because it allows observation, recording, and information distribution activities to be carried out at the same time [15].

Apart from promoting multiplatform electronic rubrics, the implementation phase that is constantly carried out today often allows electronic rubrics to be incorporated into different learning management systems [16]. This makes a reasonably strong correlation between student self-assessments, peer ratings, and assessments given by the teacher through simpler evaluation categorization such as A +, A, B, C, D [17].

2.2. Social skills for tourism industry workers

Each industry has jobs with varying levels of quality and/or the quality of service industry jobs vary widely [18]. Thus, one of the tasks of educational institutions is to better match graduate results with business needs and to seek the future expected trends by companies [19]. Social skills are one of the categories of workers that can fill the industrial space in the midst of the industrial revolution 4.0., besides hard skills and soft skills. Social skills are indicative of the human capability to collaborate and connect with others [20]. Students' ability to cooperate is an

essential aspect of entering the industry [21], in order to be able to cooperate well, students need to be able to communicate, adapt, collaborate, and self-esteem in the growth of different skills that need to be acquired [22] and can succeed in the industry in the future.

2.2.1. Adaptability

Students are in a new environment with a variety of different cultures, including work culture, so students will learn to adapt and communicate well. The results of research in Texas show that the new environment has a big impact on the adaptability and communication of learners [22]. Humans are biopsychosocial beings as a whole, in fulfilling their needs, humans are always faced with various complex problems so that they are required to make adaptations [23]. In addition, students must be able to adapt to the work environment [21] and have the willingness and desire to work and study [24]. Adaptability is supported by persistence, resilience, and moral character, namely integrity, fairness, empathy, and ethics. This character must be formed both in school and in the workplace to help individuals to be active and responsible [25]. This shows that the human factor as workers in Industry 4.0 must have the ability to control or use smart equipment properly, have good performance to support the system applied to workers. One thing that needs to be considered is the adaptability of workers to the phenomenon of disruption in Industry 4.0 [26].

2.2.2. Communication skills

The ability to communicate effectively aims to make it easier to understand the message given. In the world of work, communication is one of the abilities that must be possessed to be able to convey and receive and respond to information well, so that it can help the work process properly. The form of effective communication is shown in Table 1.

Table 1. Effective communication forms [19].

Effective Verbal Communication	Non-Verbal Communication
a. Happen reciprocally.	a. Physical appearance.
b. The meaning of the message is concise and clear.	b. Posture and gait.
c. Language is easy to understand.	c. Facial expressions.
d. The mode of delivery is easy to accept.	
e. Delivered sincerely.	
f. Have a clear purpose.	
g. Shows the norms that apply.	

In addition to speaking and engaging in conversations, discussions, and meetings, the ability to communicate is also capable of reading and understanding written material, expressing thoughts, ideas, material, and messages in written form, and listening to and responding to messages, either through verbal or gestures or body language [27]. Communication abilities are often shown by the ability to communicate in a foreign language, the ability to listen to others, the ability to communicate ideas well, the ability to voice agreements and disagreements well, and the ability to understand spoken and written language [27, 28].

2.2.3. Collaboration

Collaboration is a form of social process in which certain activities are carried out to achieve common goals by assisting one another and understanding the activities of each other [29]. The values that underlie a collaboration are the same goal, common perception, willingness to process, mutual benefit, and honesty [30, 31]. Today's world is not only borderless, but limitless. Therefore, in this 21st century, everybody has to be ready to face the world, and we need the capacity to deal with it, one of which is a collaboration [32]. There are three methods of collaborating which are participating in a collaboration, engaging in solving problems in groups, and establishing collaboration.

All learners must be clear about the purpose of collaboration. Students must be able to grasp the objectives and follow all the predetermined timetables. The role of each person in the completion of tasks by understanding the primary tasks and functions in the execution of each job. Collaborative work most successfully occurs in an environment of mutual trust. In solving the current problems, each team member must play an active role. In order to promote dialogue, such as by email or document sharing services to keep participants up-to-date, partners must have the ability to share ideas and knowledge by various existing media and including learning to identify each member of the team.

2.2.4. Self esteem

Self-esteem is a definition of self that responds to the ups and downs of changing circumstances. The transition becomes something that is natural or fluctuates for a moment for workers with strong self-esteem and does not impact the perspective of the work and the different obstacles that exist [33]. This low self-esteem in others triggers everything I cannot do anything. This will hamper the growth of careers and education. Therefore, to be able to continue to grow, every student needs to have good self-esteem. Generally, in building self-esteem, there are two key factors that need to be considered, particularly regarding believing in one's own abilities, having general control over life, and believing that anyone can do what students want, plan, and expect.

Students who have low self-esteem rely heavily on the approval of others to feel good about themselves. This makes a person who tends to avoid risk for fear of failure. Students need to get positive feedback from the teacher where this will encourage students to continue practicing. The process of providing feedback to students will indirectly tell students that the exercise is always seen and noticed by the teacher. Feedback will only be obtained if the teacher is active during learning activities.

Teachers must always pay attention to students, move around to monitor, and observe learning activities conducted by each student around the learning area (practice). Helping students to assess the ability that they cannot see and feel themselves. At the same time, encourage teachers to consider how important aspects of learning are at the level of the capacity of students to master each task and skill as the teacher's learning objectives which prepared previously. This feedback would be able to provide inspiration, reinforcement, or punishment [9].

3. Method

This study used the literature review method, starting from the stages of data search, data selection, data collection, data sorting from the online science database website through Science Direct, Google Scholar, and the Scopus data base [34, 35]. The implemented adjusted to the needs of this study by determining four stages of ISEI which are identification, screening, eligibility, included and finally analyzing the discussion and results. The keywords found such as rubric, electronic rubrics, social skills, tourism industry, assessment of learning outcomes, vocational education, Industry 4.0. The results of the sorting from 320 sources contained 50 scientific articles used in this literature review. Then, analysis and coding were carried out using the spreadsheets program. In this study, each scientific paper used was then reviewed and tabulated on the premise of the need to determine the completeness of the identity of the author (name, year of publication, journal name), the research method used, content analysis (how the researcher determines the method for assessing the learning outcome or assessing the learning outcome in the context of electronic learning rubric, the competence of vocational education students in the aspects of social skills needed by the tourism industry), discussion (exposure of research results, future opportunities as well as input and suggestions from researchers based on the findings and results of their research). Through this literature review, these four steps were carried out to guide researchers in conducting research on the use of electronic rubrics in the systematic assessment of social skills. The literature review method used can be seen in Fig. 1.

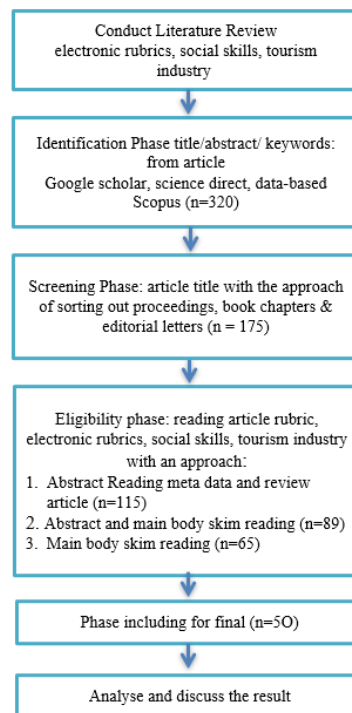


Fig. 1. Research methodology.

4. Discussion

Rubric is an assessment guideline used to assess the level of written, verbal and project competencies of students [36]. Rubric can also be used as a document defining skills by inserting measured criteria and describing the level of quality of good or bad performance skills and competencies [37]. The development of an efficient rubric to determine student competence must be based on clear competency requirements to be assessed [11, 16]. Before compiling an assessment rubric, first synchronize it with the objectives and competencies that students must attain in accordance with the expected design, and this will encourage the design of a rubric that is specific to the assessed skills. Rubrics are designed to be able to assess student learning results reliably and objectively relevant to the strengths and skills that students need to accomplish [36]. The use of the Likert scale in making the scoring rubric is one alternative, because it can provide feedback on the evaluation process and is more in-depth when the assessment takes place [5, 29, 38]. In addition, the preparation of rubrics must be able to follow an evaluation method that allows students to enhance their skills further, therefore, electronic rubrics are one of the proper equipment chosen to build student skills assessment [7]. The electronic rubric is an alternative evaluation tool that helps teachers determine and explain what competencies must be achieved during the learning process using predetermined performance criteria. Students can monitor the learning process and progress and the results of the competencies to be achieved and how to improve them if these competencies have not been achieved [5, 39, 40].

Electronic rubric defines in the form of items and assignments the basic characteristics of learning outcomes attained by students and the degree of achievement that students need to achieve. The instructor offers details about what expectations need to be reached before the evaluation process takes place, how the performance improvement process is, and the input given in the learning process [41]. The electronic rubric has the same content guidelines as the conventional rubric, what distinguishes it is the use of technology in conducting assessments [39]. There are several programs that can be used in the development of electronic rubrics such as Annenberg Learner, Essay Tagger Common Core Rubric Creation Tool, eRubric, and RubiStar [42]. One of the platforms that can be used to make electronic assessments is RCampus. iRubric RCampus is a comprehensive rubric development, assessment, and development tool. Designed from the ground up, iRubric RCampus supports a wide variety of applications in its use. iRubric Enterprise Edition empowers schools with an easy-to-use system to monitor student learning outcomes and align with predefined assessment standards. The rubric score is automatically adjusted to the grading scale and posted in the gradebook. Students also get a safe copy of the assessed rubric, no more papers, no more calculations and no more difficulties. RCampus development for the assessment process is divided into four stages, namely build, assess, share, and collaborate as displayed in Fig. 2.



Fig. 2. Schematic of making RCampus.

The electronic rubric design that is commonly used by RCampus for different sectors in the education sector is iRubric. iRubrics has a facility that can be used freely and widely between teachers or teachers to collaborate while conducting electronic assessments as illustrated in Fig. 3.

Figure 3 showed the RCampus homepage which has the iRubric feature. Collaboration and direct participation of all teachers, students and teachers in an open and accessible way is one of the benefits that can be accomplished. This feature has been widely used for the benefit of vocational education both in formal and non-formal education. One of the advantages that can be used is the collaboration and adaptation of the available rubric as in Tables 2(a) and (b) which describes the rubric for assessing the social skills needed by the tourism industry.

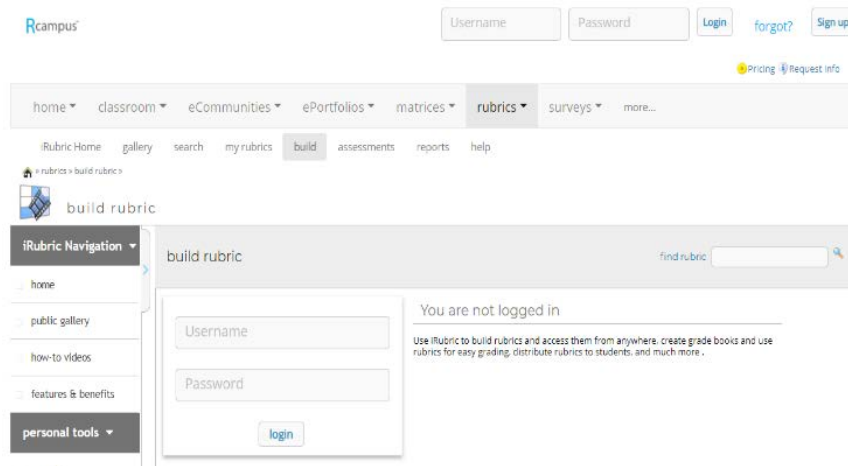


Fig. 3. Homepage RCampus.

Table 2(a). Assessment of social skills required by the tourism industry.

	1 (Poor)	2 (Fair)
Communication Skills	<p>Do not listen to supervisor instructions.</p> <p>Do not listen to the opinions of other team members when completing work.</p> <p>Do not listen to complaints from consumers.</p> <p>Do not read information on work activities in the workplace.</p> <p>Do not read the list of orders that must be done correctly.</p> <p>Do not read the recipe formula of the prepared product.</p>	<p>Do not listen to supervisor instructions.</p> <p>Do not listen to the opinions of other team members when completing work.</p> <p>Listening to complaints from consumers.</p> <p>Do not read information on work activities in the workplace.</p> <p>Read the list of orders that must be done correctly.</p> <p>Read the recipe formula of the prepared product.</p>

	1 (Poor)	2 (Fair)
	Do not read the applicable K3 information. Do not record all instructions related to the field. Do not master English and or other foreign languages.	Read the applicable K3 information. Do not record all instructions related to the field. Good command of English and no other foreign languages.
Adaptation Skills	Do not accept criticism and suggestions from superiors. Do not accept criticism and suggestions from consumers. Do not accept criticism and suggestions from peers. Do not accept criticism and suggestions from subordinates.	Do not accept criticism and suggestions from superiors. Accept criticism and suggestions from consumers. Do not accept criticism and suggestions from peers. Do not accept criticism and suggestions from subordinates.
Cooperation Ability	Do not understand the conditions among colleagues. Do not understand the needs of colleagues according to their field of work. Do not complete any given work. Do not work on the work plan in accordance with the evaluation and direction of the supervisor. Do not provide solutions to problems in the team. Do not complete work in teams or together.	Do not understand the conditions among colleagues. Understand the needs of colleagues according to their field of work. Complete any given work. Do not work on the work plan in accordance with the evaluation and direction of the supervisor. Do not provide solutions to problems in the team. Do not complete work in teams or together.
Self-Discipline	Do not show up on time. Do not fill in the attendance. Do not wear work equipment in accordance with the standard operating procedure. Do not work according to the standard operating procedure. Do not ensure working place sanitary before and after use.	Do not show up on time. Do not fill in the attendance. Do not wear work equipment in accordance with the standard operating procedure. Do not work according to the standard operating procedure. Do not ensure working place sanitary before and after use.

	1 (Poor)	2 (Fair)
	Do not complete work in accordance with the main tasks and functions. Do not go home at the appointed time.	Complete work in accordance with the main tasks and functions. Go home according to the time specified.
Creative Ability	Do not feel enthusiastic about doing all the work. Do not ask things that are considered not yet known or understood. Do not have the ability to think differently. Do not make product or work innovation that leads to something useful. Do not understand various knowledge about tourism services. Do not understand various knowledge about tourism products. Do not have the ability to finish work effectively. Do not have the ability to complete work efficiently.	Do not feel enthusiastic about doing all the work. Do not ask things that are considered not yet known or understood. Do not have the ability to think differently. Do not make product or work innovation that leads to something useful. Understand various knowledge about tourism services. Understand various knowledge about tourism products. Have the ability to finish work effectively. Have the ability to complete work efficiently.
Honesty Ability	Do not admit if you make mistakes during the work stage. Do not provide constructive input when needed. Do not practice rights and obligations in accordance with their fields.	Do not admit if you make mistakes during the work stage. Do not provide constructive input when needed. Carry out rights and obligations in accordance with their fields.
Self Esteem	Do not feel confident in their abilities. Do not keep personal reputation. Do not maintain the reputation of the company.	Do not feel confident in their abilities. Do not keep personal reputation. Do not maintain the reputation of the company.
Self Esteem	Do not provide excellent service at work. Do not have an unyielding attitude. Lack of courtesy. Has no manners. Unable to manage emotions under various conditions.	Do not provide excellent service at work. Do not have an unyielding attitude. Have a polite attitude. Have good manners. Unable to manage emotions under various conditions.

Table 2(b). Assessment of social skills required by the tourism industry.

	3 (Good)	4 (Excellent)
Communication Skills	<p>Listen to supervisor instructions.</p> <p>Listen to the opinions of other team members when completing work.</p> <p>Listen to complaints from consumers.</p> <p>Read information on work activities in the workplace.</p> <p>Read the list of orders that must be done correctly.</p> <p>Read the recipe formula of the prepared product.</p> <p>Read the applicable K3 information.</p> <p>Take note of all instructions related to the field.</p> <p>Good command of English and no other foreign languages.</p>	<p>Listen to supervisor instructions.</p> <p>Listening to the opinions of other team members when completing work.</p> <p>Listening to complaints from consumers.</p> <p>Read information on work activities in the workplace.</p> <p>Read the list of orders that must be done correctly.</p> <p>Read recipe formula of the prepared product.</p> <p>Read the applicable K3 information.</p> <p>Take note of all instructions related to the field.</p> <p>Mastering English and other foreign languages.</p>
Adaptation Skills	<p>Accept criticism and suggestions from superiors.</p> <p>Accept criticism and suggestions from consumers.</p> <p>Accept criticism and suggestions from peers.</p> <p>Do not accept criticism and suggestions from subordinates.</p>	<p>Accept criticism and suggestions from superiors.</p> <p>Accept criticism and suggestions from consumers.</p> <p>Accept criticism and suggestions from peers.</p> <p>Accept criticism and suggestions from subordinates.</p>
Cooperation Ability	<p>Understand the conditions among colleagues.</p> <p>Understand the needs of colleagues according to their field of work.</p> <p>Complete any given work.</p> <p>Carry out a work plan in accordance with the evaluation and direction of the supervisor.</p> <p>Do not provide solutions to problems in the team.</p> <p>Complete work in teams or together.</p>	<p>Understand the conditions among colleagues.</p> <p>Understand the needs of colleagues according to their field of work.</p> <p>Complete any given work.</p> <p>Carry out a work plan in accordance with the evaluation and direction of the supervisor.</p> <p>Provide solutions to problems in the team.</p> <p>Complete work in teams or together.</p>
Self-Discipline	<p>On time.</p> <p>Do not fill in the attendance.</p>	<p>On time.</p> <p>Fill in the attendance.</p>

	3 (Good)	4 (Excellent)
	Wear work equipment in accordance with the standard operating procedure.	Wear work equipment in accordance with the standard operating procedure.
	Do work according to the standard operating procedure.	Do work according to the S standard operating procedure.
	Ensure working place sanitary before and after use.	Ensure working place sanitary before and after use.
	Complete work in accordance with the main tasks and functions.	Complete work in accordance with the main tasks and functions.
	Go home according to the specified time.	Go home according to the specified time.
Creative Ability	Passionate in doing all work.	Passionate in doing all work.
	Ask things that are considered not known or understood.	Ask things that are considered not known or understood.
	Do not have the ability to think differently.	Have the ability to think differently.
	Make product or work innovations that lead to something useful.	Make product or work innovations that lead to something useful.
	Understand various knowledge about tourism services.	Understand various knowledge about tourism services.
	Understand various knowledge about tourism products.	Understand various knowledge about tourism products.
	Have the ability to finish work effectively.	Have the ability to finish work effectively.
	Have the ability to complete work efficiently.	Have the ability to complete work efficiently.
Honesty Ability	Recognize if you make mistakes during the work stage.	Recognize if you make mistakes during the work stage.
	Do not provide constructive input when needed.	Provide constructive input when needed.
	Carry out rights and obligations in accordance with their fields.	Carry out rights and obligations in accordance with their fields.
Self Esteem	Do not feel confident in their abilities.	Be confident in your abilities.
	Maintain personal reputation.	Maintain personal reputation.
	Maintain the reputation of the company.	Maintain the reputation of the company.

	3 (Good)	4 (Excellent)
Self Esteem	Provide excellent service at work. Do not have an unyielding attitude. Have a polite attitude. Have good manners. Able to manage emotions in various conditions.	Provide excellent service at work. Have an unyielding attitude. Have a polite attitude. Have good manners. Able to manage emotions in various conditions.

The electronic rubric is an alternative assessment tool that assists teachers and as an alternative in determining and explaining what students must achieve and also the performance criteria specified in achieving competence. In this literature study research, the iRubric feature used to enable students to monitor the competencies progress they have achieved, find out their weaknesses, and how they can achieve these results [43]. In assessing student performance and competence, the use of iRubric is important. More attributes that are more basic competencies can be explained by the electronic rubric. This can be a product of learning results. Then this output standard must be met. The electronic rubric provides information on the assessment criteria that must be met in dealing with activities, assesses the assessment [44].

The use of rubrics in evaluating the learning process has a positive impact [45]. The argument is based on the available facts from the results of a comparative analysis between classes that do not use rubrics and classes that use rubrics. The difference is clear where classes that use rubrics are more focused and experience improvement in the learning process [46]. As for teachers, rubrics can be useful in helping them ensure that they teach according to the competencies and needs of students in the subject [47]. The assessment rubric aims to develop and organize students by guiding them through the stages of goal setting, planning, self-monitoring, and self-reflection. Assessment factors are identified to influence the effectiveness of students' self-assessments [37].

The electronic rubric generates feedback on skills, and students feel better prepared for practical exams. The main feature of the electronic rubric is that the process of implementation is a key factor in terms of punctuality, user accessibility, simplicity, objectivity, in terms of its use to improve qualitative or quantitative learning and training, self-assessment and in promoting accountability [37].

5. Conclusion

An electronic rubric is an assessment tool that offers guidelines and levels of accomplishment within a framework. Teachers may determine the strengths and performance of students, learning needs, and outcomes of student learning. The electronic rubric is structured to understand accessibility, versatility, and sensitivity to feedback from learning. This evaluation method is designed for independent use during the learning process by users as an assessment tool. In education, the electronic rubric (iRubrics) offers a good application of scope, especially in the evaluation process. Electronic rubric to support the student skills and performance assessment process in order to achieve the expected competencies. iRubric is useful for enhancing the quality of abilities, one of which is accessible and open student

social skills, and the introduction of iRubric along with various shifts using IoT (Internet of Things) and CPS (Cyber-Physical System).

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