

# Alignment of Learning Outcome Assessment Approaches: In Polytechnic Colleges of Addis Ababa, Ethiopia

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## ABSTRACT

In the learning process assessment approaches have decisive roles in addressing trainees' competencies. This study aimed to investigate alignment of learning outcome assessment approaches such as formative assessment, self-assessment and summative assessment at polytechnic colleges in Addis Ababa, Ethiopia. From the initial design of the study to the systematic collection and analysis of data, every procedural decision was aligned with the tenets of the behavioral theory as a lens to ensure conceptual consistency across all phases of the investigation. This study used a quantitative research approach with a descriptive survey research design. Out of six polytechnic colleges three were selected by using random sampling. Then, questionnaires were used to collect data from 202 polytechnic college trainers and 358 trainees. Moreover, 3 polytechnic college deans, 3 department heads, 6 trainers, and 6 trainees were taken by using purposive sampling and then involved in a closed ended structured interview. To analysis the data, the study employed both descriptive and inferential statistics. A one-way ANOVA revealed that there was a statistically significant difference between trainers and trainees view towards the alignment of assessment approaches,  $F(2, 199) = 4.801, p < 0.05$ . The result of the study portrayed that there was a weak alignment among self-assessment, formative assessment and summative assessment in learning outcome assessment. The study also highlighted that assessment practices at the polytechnic college are frequently executed without a table of specifications. Finally, the study figured out that the extent of alignment among formative, summative and self-assessments in learning outcome assessment at polytechnic college was not well integrated. Therefore, professional development program should be provided to polytechnic college trainers to improve the alignment practice among the three assessment approaches.

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## INTRODUCTION

In the training ecosystem, polytechnic colleges dedicated in equipping trainees with industry-relevant skills and the assessment outcomes become a critical component of their competencies (Abatihun, 2020). In the training context, alignment is the intentional synchronization among learning objectives, training activities, assessment methods, and assessment approaches to ensure they all point toward the same goal (Heeralal, 2023). When a training system is aligned, trainees are easily assessed on exactly what they were taught and what they were expected to learn. Within this framework, self-assessment, formative assessment, and summative assessment function as a continuous feedback loop rather than isolated events (Black & Wiliam, 2021). For instance, self-assessment enables trainees to reflect on their own learning progress, raising

metacognition, while formative assessment provides timely insights for trainers to adjust the training procedure. Both serve as the developmental bridge to the summative assessment. Hence, together, they ensure that trainees reach the final project or exam. Conversely, ensuring clear connection or alignment among assessment approaches with the intended learning outcomes remains a significant challenge of most polytechnic college trainers.

Alignment is essential not only for maintaining trainees' competency but also for enhancing trainees' success in their careers (Singh & Heeralal, 2022). In the technical vocational and training colleges implementing a balanced assessment strategy that incorporates assessment for learning, assessment as learning, and assessment of learning poses substantial practical challenges. The main obstacle that concerns the use of assessment for learning is providing a detailed, constructive and continuous feedback to the learners. In an overcrowded workshop setting, it might be logistically and technically challenging to give quick feedback for trainees (Watson & Evans, 2020). Similarly, large number of trainees in the workshop creates pressure on summative assessment. Besides, a significant amount of time and resources are dedicated to preparing for and conducting feedback that is necessary for assessment of learning.

To address quality training at various levels, assessment is a central concern of the training and learning process (Black & Wiliam, 2021). One strategy a trainer can develop a trainee's competencies is through practical assessment (Denny & Smith, 2022). In addition, changes in attitude, knowledge, and skill are among the competencies required and acquired by trainees following the training phase and assessment process (Rahman, 2021). Hence, comprehensive competencies of the learners would be identified and authenticated through assessment process and approaches. Like assessment of learning, assessment as learning is not frequently employed by the trainers. Indeed, incorporating of assessment as learning enables vocational college trainees to cultivate valuable skills for self-monitoring and evaluating their own competencies. One of the basic problem in the case of assessment as learning is college trainees do not have the deep insight about self-assessment, particularly beginning trainees lack the required understanding how to measure their competencies.

Conducting assessment activities within specific learning contexts may be challenging. This issue has become a significant concern in polytechnic colleges. According to Murray (2020), learning outcome assessments are not universally applicable but require tailored approaches, demanding accommodations and adjustments to align with trainees' needs and the nature of the training.

Similarly, assessment is taken as a tool that guides trainers, trainees and the training system as a whole to meet the desired outcomes (Black & Wiliam, 2021). In the context of polytechnic college training, assessment activities should encompass a wide range of tasks (Tay, 2022). For example, it entails providing input to trainees, inspiring, guiding, and certifying them. However, the assessment practices at polytechnic colleges fall short of meeting their intended functions due to lack of alignment among self-assessment, formative assessment and summative assessment. Moreover, the assessment process in polytechnic colleges is further hindered by several technical deficiencies. Specifically, lack of applying table of specification, inadequate item development skills, and a failure to conduct analysis of assessment instruments collectively compromise the quality of assessment practices.

One of the fundamental problems is how to employ assessment approaches including assessment for learning, assessment of learning and assessment as learning and their implications in the training process at polytechnic colleges. Many research examining assessment for learning and assessment as learning mostly depend on qualitative data that gauge views of efficacy. However, the importance of self-assessment, formative assessment and summative assessment and their alignment were not investigated. Consequently, college trainees do not go through with different forms of assessment. Again, self-assessment and peer assessment are not conducted at various education and training institute as a means of assessment training competency (Chan,2021). Mainly, college trainees feel more confident after engaging in peer assessment but

it often fails to rigorously measure whether their self-assessment accuracy has actually improved when compared against an expert's evaluation. Self-assessment is not well functioned and taken as effective tool to assess trainees' competency (Black & Wiliam, 2021).

One of the major weaknesses in the current assessment practice at technical vocational and training colleges in Ethiopia is the disconnection of assessment approaches such as formative assessment, summative assessment and self-assessment. Ultimately, technical vocational and training colleges should prepare trainees through effective assessment tools. The crucial validation for any vocational assessment is producing competent graduates who are adaptable in the world of work. However, learning outcome assessment approaches are not well integrated and do not measure trainees' desirable performance. There is the scarcity of cross-sectional and longitudinal studies how assessment approaches are employed to assess college trainees' competency. There is a gap in alignment among formative assessment, summative assessment and self-assessment in the technical vocational and training polytechnic colleges.

On top of that, the assessment of competency at polytechnic college is subjected to a number of difficult challenges. In line with this concept, Cavanagh (2021) explains that different variables such as trainers assessment development skills, planning skills, pedagogical skills and trainee behaviors management skill could have a direct impact on the assessment practices. As a result, such factors can have an effect on the assessment activities of the training.

The central aim of this study is to investigate the role of alignment among assessment approaches, as maintaining this synergy is indispensable to the integrity of the training process. By examining how self-assessment, formative feedback, and summative assessment converge, the research highlights how synchronized pedagogical strategies ensure that training goals are effectively realized. Ultimately, this investigation underscores that when assessment approaches are meticulously mapped to intended outcomes, they provide a more cohesive and meaningful training experience for polytechnic college trainers and trainees.

Despite the structural transition toward competency-based training, Ethiopian polytechnic colleges face a critical alignment gap among self-assessment, formative assessment, and summative assessments. Current practices often treat these assessment modalities as isolated events rather than an integrated continuum; specifically, the internal reflections of the trainees and the feedback from trainers frequently fail to mirror the rigorous standards of the final competency assessments. This fragmentation indicates that the current assessment practice does not effectively support trainee learning. The persistence of this misalignment creates a significant barrier to the credibility of vocational certifications, as there is no empirical assurance that a trainee's progression through training is accurately reflected in their final performance. Because the connections among self-assessment, assessment for learning, and assessment of learning are weak, the system lacks the diagnostic depth required to identify and bridge specific skill deficits before graduation. Consequently, there is an urgent need for empirical investigation to analyze the root causes of this systemic disconnect and to suggest solution that ensures polytechnic trainees possess the verified competencies demanded by the labor market. Therefore, the major aim of this study was to investigating the issue of alignment among learning outcome assessment approaches in polytechnic colleges in the case of Addis Ababa, Ethiopia.

To fulfill the objective of the study, two targeted research questions were systematically formulated to guide the investigation. These questions served as the structural foundation for the subsequent stages of the study, dictating the specific methodology employed for data collection and analysis sections. By aligning the empirical evidence gathered directly with these core inquiries, the study ensured a cohesive flow from theoretical framing to practical findings, ultimately it provided answers to the central problem of the study.

This study attempted to answer the following pivotal questions:

- To what extent are assessment for learning, assessment as learning, and assessment of learning aligned?
- What are the major challenges affecting learning outcome assessment at polytechnic colleges?

### **The meaning and concept of assessment**

The term assessment is a very broad concept that works at different levels for multiple purposes. Assessment is a universal practice that measures learning performances in the education and training process. According to Heeralal (2023), assessment is described as the data collection process which may be most significant, time-consuming, and laborious task in the training process. At the education and training institute level, assessments are used for different purposes. For instance, in the polytechnic college training, trainers frequently utilize assessment tools to determine the attainment of training objectives (Heeralal & Askalemariam, 2023). Therefore, assessment is a means of justifying the relationship among training activities, experiences, readiness, accomplishment and training process.

Again, the word assessment refers to a means to judge the extent of learning in the training context (Suhaila & Mohd, 2020). Similarly, Brown and Green (2020) describe that assessment is the process of monitoring learners understanding while they demonstrate their competencies. Besides, assessment is designed to assess the extent to which assessments reflect actual learning and real-world contexts. As a result, assessment is described as a process of gathering information about trainees' competency in order to meet training objectives. Likewise, Singh and Heeralal (2022) explain assessment as an essential component of the training.

### **Approaches of learning outcome assessment**

Commonly, college trainers employ several instruments to assess learning outcomes during the training process. Sometimes, the assessment mechanisms that are used in the classroom can be identified as approaches. The growing body of contemporary literature identifies four types of assessment approaches. According to Watson and Evans (2024), approaches to learning outcome assessment are classified as assessment for learning, assessment as learning, assessment of learning, and assessment in learning. On the other hand, educational experts and professionals have identified several dichotomies to classify assessment. According to Black and Wiliam (2021); Heeralal (2023) assessment approaches are compartmentalized as summative and formative assessment, functions and processes, and formal and informal assessment for learning. Hence, such type of classification shows that there are different forms of classification regarding assessment approaches.

According to Murray (2020), different forms of assessment procedures, such as formal and informal assessment activities serve as a component of learning and provide information for subsequent learning activities in assessments for learning. Likewise, Tadesse and Gillies (2021) describe that formative assessment is used in the classroom to increase trainees' learning opportunities. Furthermore, Heeralal and Askalemariam (2022) argue that assessment for learning has evolved from the admirable goals of academics to focus classroom procedures and encourage learners' involvement in learning activities.

Another form of assessment approach that emphasizes on trainees' self-assessment is known as assessment as learning. Benson and Halim (2024) describe that assessment as learning occurs when trainees act as if they are evaluating their own performance as an assessor. With this type of assessment approach, trainees are free to maintain of their own learning, ask questions, and utilize a number of techniques to test their knowledge and skills (Adams & Slater, 2021; Singh & Heeralal, 2022; Khan & Malik, 2023). According to Brown and Green (2020) there are different tools that can be used in the case of assessment as learning, and some of these are self-checks, rating scale, likert scale, and mini-member assessments. By using such tools, trainees can measure their own learning progress during self-assessment and identify their areas of strength and weakness (Chan, 2021).

The other form of assessment approach, which measures the overall learning outcome of the trainees to authenticate the attainment of the objectives, is designed as assessment of learning. It helps trainers to review trainees' performance in relation to objectives and standards of the training material (Ali & Sabri, 2023; Taylor & Smith, 2024). In this assessment approach, trainer-directed training takes precedence over trainees' involvement (Suhaila & Mohd, 2020). Such a type of assessment strategy is commonly employed by trainers not only to know the trainees' performances but also to report the training holistic competencies about the subject matter to the concerned bodies.

According to Reddy and Andrade (2021), assessment of learning is done to resolve difficulties with accountability and reporting requirements, as well as to improve both internal and external learning processes. Similarly, Heerala and Askalemariam (2022) describe that summative assessment is intended to provide detailed information about trainees learning activities at the end of the training period.

Lastly, assessment is classified as assessment in learning or inquiry assessment. In this form of assessment, the focus of training shifts away from the correct answer towards a fertile question. Trainees engage in processes that generate feedback on their learning from a variety of sources and activities through inquiry (Watson & Evans, 2020). It helps to build other learning activities, lines of inquiry, and generating of new questions. According to Rahman (2021), like formative assessment, assessment in learning benefits the learners, and as a result, trainees are at the center of learning because they monitor, assess, initiate, and reflect on their own learning progress. Furthermore, in this approach, the trainer serves as a coach for the trainees. In general, trainers and trainees must understand the purpose of each assessment approach and strategy to conduct successful assessment.

Overall, assessment approaches are commonly classified in to three main categories including assessment for learning (Formative assessment), assessment of learning (Summative assessment) and self-assessment (Assessment as learning). Hence, these three approaches were taken in to account on this study to investigate their alignments during the learning outcomes assessment process at polytechnic colleges.

### **The meaning of alignment and assessment tools**

In the training ecosystem, alignment is defined as the degree of coherence and functional synergy among learning standards, training components, training strategies, and assessment approaches (Fiveable, 2025). The alignment of assessment tools specifically refers to the precision with which evaluative instruments measure the exact knowledge and cognitive depth prescribed by the intended learning outcomes (Bhaw & Kriek, 2024). Grounded in the theory of constructive alignment, this process ensures that trainees are not merely tested on content, but are engaged in tasks that reflect the specific actions defined in the curriculum (Lestari, 2025). Recent research emphasizes that misalignment often leads to pedagogical fragmentation, where trainees may achieve high grades through rote memorization even when the curriculum goals prioritize high-order critical thinking (Romanowski et al., 2023; Hristov et al., 2025). Therefore, effective alignment serves as a critical quality assurance loop, validating that the achieved curriculum matches the intended one. In this study, the term alignment is the degree of integration among assessment approaches such as self-assessment, formative, assessment and summative assessment.

One of the indicators for the effectiveness of learning outcome assessment is the relationship between training objectives and assessment tools. It is taken as a necessary guide for trainers to check and make balance between the learning objectives and assessment instruments. According to Reddy and Andrade (2021), many aspects of learning activities and assessment tools should be studied in greater depth, taking into account that assessment tools are valuable in realizing the attainment of the learning objectives. In the assessment process, alignment between the learning objectives and the assessment instruments facilitates quality training (Tay, 2022). Hence, creating a match among the necessary components of the training process is too much valuable (Whelan & Finn, 2024).

In some cases, the types of assessment tools that are used depend on the objective of the training. For instance, the implementation of the outcome-based training curriculum requires practical training and assessment (Denny & Smith, 2022). Therefore, trainers should focus on empirically measuring trainees' performance based on expected learning outcomes. The process follows the alignment model, which ensures that the outcomes are aligned between training activities and assessment tools (Ali & Sabri, 2023).

## THEORETICAL FRAMEWORK

In polytechnic training system, where technical competences are the ultimate goals and the synergy between assessment approaches is the foundation of pedagogical success. The concept of alignment refers to the deliberate synchronization of self-assessment, which fosters metacognitive awareness; formative assessment, which provides ongoing feedback; and summative assessment, which validates final competency assessment against the given standards. When these three assessment approaches are harmoniously aligned, they create a coherent progress for the trainee over all competencies.

With regarding to the alignment of assessment approaches, there are several supportive theories and research findings. According to French et al. (2025), expectancy-value theory explains how alignment affects trainee motivation and effort. It postulates that trainees' motivation is determined by the expectancy of success and the value they place on the task. If summative assessments are perceived as misaligned with formative practice and self-assessment activity, trainees' expectancy of success drops, leading to decreased engagement. In polytechnic colleges, where technical tasks are high-effort, maintaining a high expectancy through aligned, incremental assessments is critical for persistence in rigorous vocational programs.

Similarly, constructive theory also describes the concept of alignment among assessment activities and approaches. According to Biggs and Tang (2024) a strong alignment framework is essential to carry out effective learning outcome assessment in the education process. Formative assessment acts as assessment for learning, providing real-time data to adjust the training procedure immediately. Self-assessment functions as assessment as learning, where trainees develop metacognitive skills by monitoring their own learning progress. On the other hand, summative assessment serves as assessment of learning, certifying as the trainee has met the standard (Eskilled, 2025). Therefore, alignment ensures these three assessment approaches to be integrated and measure trainees' competency.

In polytechnic colleges, the assessment framework must incorporate competency-based training. Unlike traditional training models, competency based training shifts the focus from time-based learning to mastery-based outcomes (Scribd, 2026). In a polytechnic college, this might involve a trainees first using a self-assessment checklist and receiving feedback before performing a summative activities. Self-assessment is theorized as a tool for self-regulated training. By involving polytechnic trainees in evaluating their own practical work against the given assessment rubrics, they can develop the evaluative judgment necessary for the real world career life. A finding suggests that when self-assessment is aligned with summative criteria, trainees become more autonomous and are better prepared for the self-directed nature of technical careers (CIHE, 2024).

Formative assessment in polytechnic colleges acts as a diagnostic bridge between theoretical concepts and hands-on technical proficiency. By shifting the focus from grading to growth, these assessment activities provide the valuable feedback necessary for trainees to master complex skills (Heritage, 2024). In the fast-paced workshop environments, tools such as interactive simulations, AI-driven polling, and digital portfolios allow trainers to identify learning gaps instantly (Black & Wiliam, 2023). This adaptive approach ensures that trainees refine their practical techniques before reaching high-stakes summative assessments. If formative assessments activities are misaligned with summative tasks, trainees may focus on irrelevant tasks. Positive backwash occurs when all assessment types are synchronized, driving trainees toward deep learning and the actual application of technical skills rather than rote memorization for a final test (Biggs & Tang, 2024).

Again, summative assessment in polytechnic colleges serves as a high-stakes assessment of learning, typically conducted at the conclusion of a module to certify technical competence. Unlike formative approaches, it provides a definitive snapshot of trainee achievement through comprehensive assessment like capstone projects, standardized final exams, and integrated practical tasks (UNESCO-UNEVOC, 2025). However, polytechnic colleges face distinct challenges in implementation, including a misalignment between theoretical exam formats and practical skills (Black & Wiliam, 2023). Furthermore, ensuring the reliability of subjective practical evaluations remains a persistent barrier to accurate competency reporting (Abate & Bekele, 2024). From a measurement theory perspective, alignment is critical for content validity. If learning outcome requires practical activities but the summative assessment is a multiple-choice exam, the assessment is invalid. Alignment ensures that the construct being measured in the classroom is the same construct required for summative tasks, thereby ensuring the degree's credibility with the needs of the industry.

According to Biswas (2025) modern assessment frameworks alignment now incorporate AI-driven grading and feedback systems. These technologies allow for continuous, personalized formative feedback that is precisely mapped to complex learning outcomes. By using AI to track progress across diverse modules, polytechnic colleges can ensure that even in large technical cohorts, every trainee receives aligned support toward their final summative goals.

In this study, behaviorist theory was used to frame the investigation and serve as the guiding theory in the design section, data collection instrument and data analysis part. Behavioral theory focuses on observable actions, quantifiable variables, and justify how they react to external stimuli. This theory is essential for learning outcome assessment research because it offers a framework for examining and evaluating particular, measurable actions that reveal trainees' learning competencies. The behavioral theory is in line with quantitative research, which bases its conclusions on numerical data and statistical analysis. Behavioral theory was used in this study to address the issue of alignment among assessment approaches in polytechnic colleges throughout the design section, data collection instrument development, data collection process and analysis.

Overall, the alignment of assessment approaches creates a holistic training environment. This synergy ensures that the transition from a polytechnic college to the workforce. When formative assessment, self-assessment, and summative assessments are aligned, the expected learning outcomes match with the actual competencies, resulting in graduates who possess not just the knowledge, but the proven ability to use that knowledge in professional settings (Cedefop, 2024). In the polytechnic college working landscape, the strategic alignment of self-assessment, formative assessment, and summative assessment creates a seamless competency architecture that mirrors industry standards. This integrated approach ensures that the transition from a trainee's reflection to real-time skill adjustment and final certification is consistent and transparent. When these methods are aligned, they eliminate training learning gaps by ensuring that the practical tasks practiced in the workshop directly prepare the trainee for the rigorous demands of professional licensure and workplace performance. Again, this synergy not only boosts trainees' confidence but also guarantees that polytechnic college graduates possess the verified, high-level technical skills required by high-tech industry.

## **METHODS**

This study used a quantitative research approach with a descriptive survey research design. The study aimed to investigate alignment of learning outcome assessment approaches such as formative assessment, self-assessment and summative assessment at polytechnic colleges, which are found in Addis Ababa, Ethiopia.

The target population comprised polytechnic college trainers and trainees in Addis Ababa. In the city, there are six government-owned polytechnic colleges; of these, three colleges, namely Akaki, Nifas Silk and

General Winget polytechnic colleges were selected through simple random sampling. There were 5,203 trainees and 422 trainers in three colleges. From these populations, 358 trainees and 202 trainers were selected as the sample for the study. A proportional stratified sampling approach was used to determine the number of participants from each stratum. Then, simple random sampling was used to draw each participant from every stratum. Besides, three polytechnic college deans, three department heads, six trainers and six trainees were purposely taken from three colleges to conduct structured interview.

Questionnaire and structured interview were the main data collection instruments of the study. Within a quantitative framework, these instruments were deemed sufficient to provide a comprehensive information to address the research questions. The primary tool consisted of 70 items questionnaire developed for polytechnic trainers and trainees, with all items meticulously aligned with the variables. The study utilized a five-point Likert scale to measure participants' levels of agreement across key variables. Responses were quantified on a structured continuum ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), with 3 (Neutral) serving as a midpoint. This ordinal scale allowed for the precise statistical mapping of views toward assessment alignment practices within the polytechnic colleges.

Besides, seven structured interview questions were developed to obtain additional information about the key variables through well-formulated interviews. To facilitate a rigorous statistical analysis, the structured interview responses were quantified by converting qualitative data into discrete numerical values. This process involved the application of a systematic coding, where specific participant responses were assigned representative numbers to allow for the calculation of frequencies, the identification of patterns, and the comparison of variables across different polytechnic college departments. To assess the reliability of the instruments, a pilot test was conducted at the outset. The instruments underwent rigorous validation and reliability analysis indicated that Cronbach Alpha coefficients of 0.87 for the trainer questionnaire and 0.89 for the trainee version.

The collected data were analyzed using SPSS version 29. The study employed a quantitative approach, utilizing descriptive statistics to provide an overall description of the practices of learning outcome assessment. Specifically, percent, average, and standard deviation values were used to assess the extent of alignment among assessment for learning, assessment of learning, and assessment as learning. Furthermore, inferential statistics, including T-tests and ANOVA, were used to examine the mean variations among variables and between the view of trainers and trainees at polytechnic colleges. Besides, the study utilized structured interviews during the analysis phase to provide supportive information about the alignment among assessment approaches and the major challenges which are very common in the polytechnic colleges.

To ensure the study met ethical standards, formal institutional approval was secured by submitting official letter of intent to the polytechnic college deans. Following administrative clearance, informed consent was sought at the level from department heads, trainers, and trainees. Participation was entirely voluntary; all participants were briefed on the purpose of the study and explicitly informed of their right to withdraw to answer specific questions both in questionnaire and in the structured interview without any influence. This multi-level consent process ensured that data collection was conducted with full transparency and respect for participant autonomy.

## RESULTS

In the first part, trainers were asked to provide their response about the frequency of using self-assessment, formative assessment, and summative assessments. According to the response, 107 (29.91%) of the trainers use the three assessment approaches, such as assessment of learning, assessment as learning, and assessment for learning. With regard to employing a variety of assessment tools, 121(59.90%) of the respondents agreed that they used a variety of assessment techniques during learning outcome assessment. Likewise, 92(45.50%) of the respondents agreed that assessment as learning or self-assessment was

employed. Moreover, 103(50.90%) of the respondents agreed that assessment of learning was frequently employed than assessment for learning.

Regarding the extent to which implementing different assessment tools, 106(52.51%) trainers indicated that there is a link among written exams, practical assessment, and self-assessments during learning outcomes assessment. Notably, 182(90.10%) believed that formative, summative, and self-assessments are interconnected and mutually reinforcing. Similarly, 156 (77.22%) of the respondents confirmed that they created an alignment between the learning objectives and the learning outcomes assessment tools. Likewise, 173(85.60%) respondents agreed that there must be a clear connection between learning outcomes and assessment tools.

One of the fundamental components in developing assessment tools is selecting the relevant tools. Concerning the selection of very relevant assessment tools, 115(56.93%) of the respondents felt that the appropriate assessment tools were taken to address learning competencies assessment. However, 108(53.51%) of the respondents confirmed that table of specification was not used. Again, 164(81.22%) of the trainers who were involved in the study agreed that they tried to identify assessment techniques that were directly fit with the learning outcomes. Moreover, 103(51.01%) respondents were undecided about the characteristics of assessment tools and the extent to which they address the intended learning outcomes.

Polytechnic college trainers view towards the alignment of training components were computed by using mean values. The average values of sub-categories are presented in relation to the alignment of learning components such as learning outcomes, learning objectives, and assessment tools. According to the respondents, the average values indicated as follows: alignment among assessment approaches (Mean = 2.48), alignment among assessment elements (Mean = 2.42), and planning about assessment (Mean = 2.37), with a total of 202 respondents. A one-way ANOVA revealed that  $F(2,199)=4.801$ ;  $P<0.05$ . This denotes that there was a statistically significant mean difference of perception between trainers and trainees towards the alignment among assessment approaches.

The other area of this study was investigating the extent to which assessment approaches such as formative assessment, self-assessment, and summative assessment were used by college trainers from trainees perspective. Based on the data, 234(65.41%) college trainees confirmed that the three assessment approaches were not frequently used. Similarly, 235(65.62%) trainees agreed that a variety of assessment techniques were not used during learning outcome assessments. Furthermore, 272(75.90%) respondents agreed that some of the polytechnic college trainers lacked sufficient experience in employing assessment as learning. Moreover, 265(74.01%) of the respondents agreed that assessment of learning was frequently used than assessment for learning.

The concept of learning outcome assessment and alignment of assessment components were also presented to polytechnic college trainees. Accordingly, 248(69.33%) of the respondents felt that it seemed difficult to use the three assessment approaches in a single training material. Regarding to assessment tools interdependency, 210(58.67%) of the respondents agreed that polytechnic college trainers attempted to establish a connection among written exams, practical exams, and self-assessments during learning outcome assessments. Additionally, 194(54.22%) trainees confirmed that they viewed formative, summative, and self-assessments as interconnected and mutually supportive. However, 249(69.62%) trainees responded that college trainers did not align learning objectives with assessment tools.

Furthermore, 302(84.34%) college trainees who involved in the study indicated that assessment tools lacked a direct link to learning objectives. Similarly, 286(79.91%) respondents confirmed that trainers did not allot sufficient time in aligning assessment tools with learning outcomes. Finally, 283(79.03%) respondents reported that college trainers did not consistently connect assessment activities with learning objectives. In line with assessment tools selection, 251(70.11%) trainees indicated that relevant assessment tools were not

commonly selected to address learning outcomes. Similarly, 166(46.33%) trainees agreed that trainers used a table of specifications while preparing questions.

Based on the view of college trainees, the average values also revealed the extent of the connection among the components of assessment approaches (Mean = 2.14), alignment among elements (Mean = 2.47), planning assessment tools development (Mean = 2.35) with N = 358 respondents.

An independent t-test was computed to investigate significant differences between polytechnic college trainees and trainers with regard to the variables related to alignment among formative assessment, summative assessment and self-assessment. Polytechnic college trainers' and trainees' response average values were computed as Mean = 62.00 with N = 202 and Mean = 57.78 with N = 358, respectively. Based on the mean comparison, there was a statistically significant mean value difference between the mean of the trainees and trainers at  $t(558) = 5.052$ ;  $P < 0.05$ . It implies that there was a statistically significant mean difference between trainers and trainees on the issue of alignment of learning outcome assessment approaches.

To substantiate the data which was collected by using questionnaire, a structured interview was also carried out. Literally, making connections among formative assessment, summative assessment and self-assessment enhances the training and learning process. However, there is a problem in maintaining relevant connection among the assessment approaches. During the interview session, polytechnic college deans, department heads, trainers, and trainees responded for the given question. For instance, one of the college deans responded as follows:

I believed that there must be a good connection between learning objectives and the types of assessment tools that serve trainers to ensure the attainment of training goals. Making connections between the assessment techniques and the expected learning outcome enhances the training and learning objectives. However, there is a problem in maintaining an appropriate connection between the learning outcomes and the assessment instruments. I do not believe that the majority of trainers in my college have the tendency of keeping alignment between the desired objectives and assessment tools. Moreover, there is poor connection among assessment approaches.

All the college deans confirmed that there is a lack of good alignment among learning outcome assessment approaches and tools.

Likewise, all department heads reflected similar ideas with regard to making alignment among assessment approaches. Theoretically, alignment is valuable to address the training objectives and training programs and this process should be supported with relevant assessment tools that can fit with learning objectives. The department heads had similar ideas with regard to making alignment among assessment approaches. One of the department heads described as follows:

It is clear that alignment is valuable to measure and address the training goal. I also feel that learning and training programs are checked through the assessment process, and this process should be supported with appropriate assessment tools that fit with learning objectives. At the departmental level, I also reminded everyone, particularly new trainers, to prepare quality assessment tools that embraced the learning outcomes. Unfortunately, I am afraid that the learning assessment tools might not always parallel with intended objectives. This is a result of trainers' low-level skill in assessment tool development, lack of attention, and ignorance of the assessment activities. Hence, I feel that learning outcomes are carried out without curiosity.

At the polytechnic college level learning assessment approaches were not always interrelated with intended objectives. This is resulted by trainers' low-level skill in assessment approach development, lack of attention, and being lenient towards the assessment activities. Besides, college trainers do not use table of specification while developing assessment tools.

Polytechnic college trainers shared their thoughts in relation to the concept of alignment. All trainers confirmed that they made connections between the course objectives and the types of assessment approaches that measure the performance of the trainees. Therefore, according to their response, they do not have any problem maintaining an alignment between the assessment tools and unit of competencies. For instance, a trainer said as follows:

I think that assessment requires a practical connection between desired objectives and assessment tools because we construct assessment tools to measure the learning objective, and I believe that learning objectives are the main issues that should be assessed at the end of a certain unit of the course. I know that the fundamental reason for assessment tool development is to check whether the objective is achieved or not. Hence, in my part, I perceive that I frequently select appropriate assessment tools that are aligned with the objectives and can address the learning outcomes.

Nearly, all participants confirmed that they tried to make connections between the course objectives and assessment approaches while assessing trainees' competency. Therefore, according to trainers' response, they do not have any problem to maintain an alignment between the assessment approaches. It is obvious that assessment tools development is carried out to check whether the objective is attained or not in a certain extent. Hence, college trainers perceived that they frequently selected relevant assessment tools that would be aligned with the objectives and could address the learning outcomes. In contrast, there are few trainers who may not create connections among training components because of they lack experience, planning skill, and overlooking the importance of alignment among assessment approaches and learning outcomes.

Lastly, polytechnic college trainees also expressed their views about the extent to which assessment approaches were linked with the learning objectives. According to their understanding, the assessment instruments were not consistent with learning objectives. One of the trainees explained a few points as follows:

As to me, making a connection between the learning objectives and assessment approaches could help us to check how far we understand the training material. But many college trainers do not create a direct connection between the learning outcomes and assessment instruments. I am confident with 100 percent; all trainers do construct questions randomly and could not balance the tools with the objectives. They simply construct questions that are difficult and unrelated to the unit of competencies because they want to create difficulty for us.

Nearly hundred percent of the participants stated that the assessment approaches were not aligned. According to their understanding, formative assessment, summative assessment and self-assessment were not employed consistently with learning objectives. Again, the result shows that many college trainers do not create a strong connection between the learning outcomes and assessment approaches.

## **DISCUSSION**

### **Alignment of assessment approaches**

The finding of this study provides a comprehensive overview of how self-assessment, formative assessment, and summative assessment currently function within the polytechnic colleges. This section describes the alignment among assessment approaches, moving beyond a mere description of results to explore how self-assessment, formative assessment and summative assessment are implemented to assess trainees' competencies.

The first category focused on assessment approaches such as self-assessment, formative assessment, and summative assessment. In terms of employing these approaches, two third of polytechnic college respondents reported that assessment approaches were not aligned with learning outcomes. Similarly, more than two third of college trainees indicated that a variety of assessment methods were not employed by

trainers to ascertain the training objectives. Furthermore, the average values revealed that the three assessment approaches were not interlinked with the learning outcomes. The result shows that there were notable gaps in making connections among formative assessment, summative assessment and self-assessment.

Supporting the aforementioned results, Murray (2020) reveals that the connection between each assessment approach and learning outcomes is critical for fostering an effective training process. However, in practice, there was a lack of alignment among formative assessment, summative assessment and self-assessment. Similarly, Hodge and Learmonth (2023) emphasize that a training process is become complete when assessment and evaluation are conducted with sound integration; however, their findings indicated that assessment approaches are often not aligned with the intended objectives of the training materials.

Furthermore, educational and training principles advocate for implementing assessment approaches that align with the specified units of competency. Nevertheless, Kivunja (2020); Turner and Miller (2023) confirm that college trainers often neglect the importance of maintaining connection among self-assessment, formative assessment, and summative assessment. Similarly, Boud and Falchikov (2021); DeGreene (2022) explain that significant gaps exist among trainers in implementing an integrated assessments. College trainers frequently fail to employ a variety of assessment instruments, and commonly used tools are rarely aligned with each other and with the predefined unit of competency (Ali & Sabri, 2023).

A study carried out by Murray (2020) finds that college trainers' experience plays a significant role in employing assessment approaches effectively. Besides, the study reveals that novice trainers are not as proficient as senior instructors in terms of using a variety of assessment tools (Watson & Evans, 2020). Hence, experience is one of the factors that influence the extent of employing self-assessment, formative assessment, and summative assessment effectively. This finding also shows that there was a significant variation between the levels of experience among college trainers and integrating assessment approaches when they assess trainees' competencies.

The other major problem that was commonly seen in the practice of assessment at the polytechnic colleges was that trainers had not used self-assessment, formative assessment, and summative assessment according to their degree of importance. Moreover, it was found that college trainers did not use self-assessment during their course delivery period; as a result, trainees did not get the chance to conduct self-assessment. Like summative assessment, formative assessment was not frequently incorporated into the assessment process.

Conversely, William (2023) explains that there are positive alignments among assessment approaches in the technical vocational and training assessment process. Implementing a cohesive assessment practice at polytechnic colleges is essential for bridging the gap between theoretical knowledge and technical proficiency. By integrating self-assessment, formative assessment, and summative assessment, institutions can create a continuous feedback that fosters both cognitive growth and vocational mastery. This alignment ensures that formative insights directly prepare college trainees for the finality of summative evaluations, transforming assessment from a mere grading tool into a strategic roadmap for skill acquisition (Binkley et al., 2024).

Furthermore, the alignment of these assessment types ensures that the diverse learning outcomes inherent in technical education are captured with greater validity. When self-reflection is embedded alongside ongoing instructor feedback, trainees in polytechnic settings develop the self-regulatory skills necessary for the modern workforce (Wiliam, 2023). This integrated approach not only enhances trainees' engagement but also ensures that summative certifications are the true reflection of a trainee's cumulative competence (Knight & Yorke, 2024).

In general, in the training process, it is recommended that strong links shall be established among the training components such as the curriculum, session delivery, assessment approaches, desirable unit of

competencies, learning outcomes, assessment tools, and training technologies. However, this study found out that there was a gap in aligning among formative assessment, summative assessment and self-assessment. Hence, professional training is required to fill this gap and enhance the understanding of polytechnic college trainers to establish strong connections among the assessment approaches and the desired learning outcomes.

### **Maintain alignment among training components**

The next category, which was designed to address the aim of the study, is maintaining alignment between assessment tools and learning outcomes during the training period. About maintaining connection between the assessment tools and learning outcome assessment, more than three fourth of the respondents revealed that assessment tools were not strongly linked with learning objectives. In addition to the frequency and percent values, the average indicated that there was a gap in connecting the relevant assessment tools with the desired learning outcomes.

In any form of training, alignment among the training components has multiple advantages. For example, when there is an alignment within certain training processes, there will be clarity, good communication, enhanced learning process, motivation for the learning process, and effective assessment. According to Murray (2020); Khalid and Khan (2023), alignment is helpful to clarify which part of the knowledge, attitude, and skills are required from the learners and point out what progress can be achieved throughout the course by using corresponding assessment tools. Therefore, keeping alignment between assessment tools and learning objectives can provide accurate feedback to the trainees. However, if there is misalignment between assessment tools and objectives, trainees may experience frustration and might not perform well during the assessment period. With regard to the importance of well-aligned assessment, Black and Wiliam (2021); Hodge and Learmonth (2023) justify that the purpose of alignment between learning outcomes and assessment tools is to improve training quality at all levels.

It is obvious that maintaining alignment among training components serves both trainees and trainers. Corroborating this concept, Abatihun (2020) discusses the interrelationship between learning objectives and assessment tools, which enhance both trainees learning progress and the effectiveness of the training program. Furthermore, Fook and Sidhu (2022) conclude that establishing alignment between the training objectives and assessment tools facilitates the effectiveness of the training, supports trainees' efforts to attain the expected competencies, and ensures a positive training experience.

Research findings including Rahman (2021); Reddy and Andrade (2021); Turner and Miller (2023) identify the advantages of alignment among educational and training components. With regard to this concept, Khalid and Khan (2023) argue that alignment clearly improves the training process and its end goal. Furthermore, Khalid and Khan add that if the learning objectives and the major assessment tools are well-connected, the learners can show progress and acquire the intended objectives.

Even though there is no sufficient finding in the area of polytechnic colleges, alignment is the means of creating congruence among education and training components such as the curriculum, learning objectives, training activities, and assessment tools. According to Hall and Fisher (2021); Tay (2022), the importance of alignment was investigated, and finally the findings revealed that there was a weak connection among the contents, methods, and assessment activities. Similarly, McKay and Yates (2020); Whelan and Finn (2024) argue that making clear alignment between assessment tools and learning objectives allows the trainers to communicate with the trainees, particularly about the expected competencies from the learning process. Therefore, alignment enhances both educational and training activities, promotes meaningful learning, and ensures the attainment of intended objectives.

The disadvantages of misalignment were also explained by Reddy and Andrade (2021); Hall and Fisher (2021); Whelan and Finn (2024). According to the discussion, they indicate that the magnitude of misalignment among learning elements undermines the teaching and training process. They also further

describe that if the necessary training components, including learning objectives and assessment activities, are not properly aligned; it leads to unproductive learning outputs.

However, a study that was conducted on classroom project-based learning shows that having a strong alignment among teaching, learning, and assessment components might be a very challenging task (Fook & Sidhu, 2022). Hence, understanding the training elements, giving priority to expected competencies, and employing technology-enabled training systems are some of the key mechanisms for achieving effective alignment.

Similarly, as to Abatihun (2020); Cavanagh (2021); Jones and Lee (2021) creating alignment between learning outcomes and assessment techniques contributes to meaningful training. Therefore, clear alignment among learning components is essential for the success of the training process. Likewise, various studies were conducted that show how course assessment items align with learning objectives in a quantitative literacy course (Watson & Evans, 2020; Khalid & Khan, 2023; Whelan & Finn, 2024). The studies concluded that making relevant alignment between learning outcome and assessment tools enhances the tendency of measuring desired objectives.

On the other hand, recent research highlights that constructive alignment is a primary determinant of vocational mastery in polytechnic colleges. Binkley et al.(2025) indicate that when technical trainers align action oriented verbs in learning outcomes with hands-on workshop activities and authentic assessment tasks, trainees demonstrate significantly higher levels of cognitive and psychomotor proficiency. This synergy ensures that the training environment mirrors real-world industrial demands, moving assessment from a passive grading to an active learning experience that reinforces the core objectives of the training (Nikolic et al., 2025).

Findings from recent vocational college evaluations suggest that misalignment between these components often leads to fragmented learning, where trainees focus on passing theoretical tests rather than acquiring practical competence. Evidence shows that integrated curriculum designs which use formative feedback to bridge the gap between initial instruction and final summative evaluation account for up to 69% of the variance in successful trainee learning outcomes (Regassa & Desissa, 2025). By harmonizing instructional materials, digital tools, and performance-based assessments with standards, polytechnic colleges can ensure that their trainees possess the specific, transferable skills required by the market workforce (Ashbee, 2025).

To sum up, one of the principles of assessment is maintaining alignment between learning objectives and assessment tools. Moreover, assessment approaches such as assessment of learning, assessment as learning, and assessment for learning should be aligned to carry out productive assessment practices. With this principle, only a few polytechnic college trainers attempted to keep alignment between training objectives and assessment approaches; however, it still requires significant effort to ensure alignment among the training components, such as assessment tools and learning objectives. Attempts that were made by few trainers are not sufficient; therefore, actions should be taken to make alignment as a standard part of the assessment process.

### **Factors affecting alignment among assessment approaches**

Like the training process, assessment should be undertaken with scientific planning that assists in developing quality assessment tools and implementing them successfully. Assessment planning, selection of appropriate assessment tools, table of specifications were underutilized during assessment tools construction and consequently assessment tools were taken and used without scientific procedure. It implies that polytechnic college trainers assess their trainee's competency with instruments that were not developed based on table of specifications. Consequently, assessment tools that were commonly developed by the college trainers lacked quality and alignment with intended learning objectives. Besides, the result confirmed

that relevant assessment tools and instruments were not selected during assessment tools construction stage.

This study discovered that assessment practices were characterized by minimal preparation, with assessment tools developed in the absence of rigorous planning. These findings are corroborated by existing research, which similarly identifies a lack of systematic design as a recurring challenge in the assessment process of training institutes.

In assessment tool development period, sufficient time is required for both assessment planning and the construction stage to ensure quality instruments (Cavanagh, 2021; Denny & Smith, 2022). However, the findings showed that polytechnic college trainers do not budget adequate time for planning and assessment tools development. In relation to allotting sufficient time, Evans and Rainbird (2022) indicate that adequate time is not spent by the trainers to ensure in assessment tools construction.

As a principle, table of specifications is an essential device during the construction of assessment tools to keep alignment with learning outcomes (Denny & Smith, 2022). Hence, table of specifications ensures the validity of the instruments, which would measure the intended learning outcomes and the degree of trainees' understanding of specific contents that are incorporated into the training material (Brown & Green, 2020). Nevertheless, according to Evans and Rainbird (2022), most college instructors do not apply table of specifications when they construct assessment tools due to a lack of awareness about the benefits of test blueprints and the basic principles of assessment. According to Jones and Lee (2021); Hodge and Learmonth (2023) a test development plan is one of the essential aspects of the competency-based training process. However, there is a noted gap in awareness among polytechnic college trainers, and this gap negatively impacts the assessment tool development process.

In the assessment process, it is highly recommended to ensure the content validity of the training material (Evans & Rainbird, 2022). One of the important instruments that address training material content validity is the preparation of a table of specifications for test instruments (Denny & Smith, 2022). On the contrary, this study shows that assessment instruments were not organized according to test development plan because most of the college trainers lacked skills, awareness, and commitment. As a result, the assessment instruments do not address the intended competencies of the trainees.

Similarly, technical and vocational college trainers also face several challenges that hinder them from employing a table of specifications during the development of assessment tools. Supporting this concept, Denny and Smith (2022) identify a few factors that impeded the feasibility of the test blueprint in technical and vocational colleges. Some of them are: lack of skills, time constraints, complexity of assessment activities, and negative view towards assessment. One critical factor that was taken as a challenge to employ a table of specifications during test item development is college trainers' negative perceptions toward assessment activities. In relation to perception, Cavanagh (2021) explains that during assessment tool preparation, college trainers fail to prioritize the test blueprint, perceiving it as an additional workload that complicates the assessment process.

In contrary, there are studies that show table of specification is fully implemented in several polytechnic colleges. Studies within technical vocational and training settings suggest that the table of specification serves as a critical quality assurance tool during the test construction phase. A research by Regassa and Desissa (2025) demonstrates that trainees who employ a table of specification report greater confidence in the fairness and reliability of their assessments. This systematic approach reduces instructor bias and ensures that summative assessments are a true reflection of the comprehensive training objectives, thereby better preparing graduates for industry-standard certification (Ashbee, 2025).

Conducting a study on misalignment among self-assessment, formative assessment, and summative assessment reveals a phenomenon of assessment dissonance, where the lack of relevant integration among three assessment approaches. In a polytechnic setting, where practical mastery is the goal, this research

contributes that the misalignment identifies a breakdown in the trainees' internal feedback, which is often caused by a lack of constructive alignment where the low-stakes formative feedback fails to show the high-stakes summative criteria. Moreover, this study helps to shift the focus from simply improving grades to trainees' competency mastery. It argues that for vocational excellence to be achieved, scholars must treat self-assessment not as an independent activity, but as the connective issue that translates formative feedback into summative success. Without this alignment, trainees develop a wrong sense of competence that fails in real-world technical applications.

Overall, the study indicates that there is a significant misalignment among self-assessment, formative assessment, and summative assessment, resulting in a fragmented assessment process that fails to support continuous trainees' competency. This lack of integration is further exacerbated by a poor connection between core training components such as learning objectives, training activities and the actual assessment tools utilized. Consequently, the assessment process often exists in isolation rather than serving as a cohesive mechanism to validate vocational competencies. Moreover, the systematic development of assessment tools is hindered by the widespread failure of trainers to utilize a table of specification. Due to various training and capacity-related barriers, trainers often bypass table of specifications, leading to assessments that lack content validity and fail to accurately sample the required domains.

## CONCLUSION

The aim of this study was to investigate alignment among training components, particularly the connection among assessment for learning, assessment of learning, and assessment as learning. At the polytechnic college level there are several shortcomings which are related with learning outcome assessment practices. A range of assessment tools were not utilized, and self-assessment was infrequently employed during assessment process. One of the factors that affect assessment is unable to use table of specification. The absence of a table of specifications leads to misalignment between learning objectives and the assessment tools. Besides, polytechnic college trainers did not allot sufficient time for alignment of learning approaches. There were also weak alignment among assessment of learning, assessment for learning, and assessment as learning. Among assessment approaches, summative assessment was highly employed by college trainers as it compared with other form of assessment approaches.

Moreover, the implementation strategies of assessment activities were highly fragmented and did not maintain quality training because the necessary assessment components were not embraced. To this effect, the assessment practice was not effective. Thus, it requires the attention of polytechnic college administration, including the deans, department heads, and quality assessment teams, to narrow the gap that was seen in the assessment practices.

Therefore, based on the gap identified in this finding, it is propped to use the integrated vocational assessment alignment framework. This model is designed specifically for polytechnic contexts to bridge the gap between curriculum design and competence assessment. It serves as a strategic blueprint to synchronize the fragmented assessment practices within polytechnic colleges by anchoring all assessment types such as self-assessment, formative assessment, and summative assessment. This systematic alignment directly enhances learning outcomes by providing trainees with clear performance standards, reducing instructor bias through structural blueprinting, and ensuring certifications.

Overall, according to the finding of the study, three actionable solutions are suggested. Firstly, college deans should develop a continuous professional training program to polytechnic college trainers to improve trainers' assessment skills. Secondly, at the departmental level, there should be an immediate and close support that address how learning is carried out through the alignment among formative assessment, summative assessment and self-assessment. Thirdly, it is suggested to conduct further study on the impact of

assessment for learning, assessment of learning and assessment as learning against the trainees' achievement.

## REFERENCES

- Abate, T., & Bekele, A. (2024). Assessment of the implementation of continuous assessment in Ethiopian TVET colleges: Challenges and prospects. *Ethiopian Journal of Education and Sciences*. <https://doi.org/10.63620/MKJCNR.2025.1042>
- Abatihun A, S. (2020). Learning Objective and Assessment Linkage: Its contribution to meaningful students learning. *Universal Journal of Educational Research*, 8(11), 5044-50521. [https://www.hrpub.org/journals/article\\_info.php?aid=9889](https://www.hrpub.org/journals/article_info.php?aid=9889)
- Adams, C. M. & Slater, T. F. (2021). Self-assessment in higher education: A systematic review of the literature. *Assessment & Evaluation in Higher Education*, 46(5), 754-771. <https://doi.org/10.1080/02602938.2020.1834927>
- Ali, F., & Sabri, S. (2023). Assessment Alignment and Its Impact on Student Learning in Polytechnic Colleges. *International Journal of Educational Management*, 37(5), 763-776. <https://doi.org/10.1108/IJEM-07-2022-0312>
- Ashbee, J. (2025). Impact of Curriculum Misalignment and Assessment Practices on Student Learning Outcomes in Higher Education: A PRISMA-Guided Synthesis. *World Journal of Advanced Engineering Technology and Sciences*, 15(03), 2606-2627. <https://doi.org/10.5281/zenodo.16262451>
- Benson, R. & Halim, H. (2024). Self-Assessment and Its Impact on Student Learning: Evidence from Polytechnic Education. *Journal of Education and Learning*, 13(4), 489-502.
- Bhaw, S., & Kriek, J. (2024). Effective curriculum design: The role of alignment between instructional materials and assessment standards. *Journal of Educational Research and Practice*. <https://doi.org/10.5590/JERAP.2024.14.1.08>
- Biggs, J., & Tang, C. (2024). *Teaching for Quality Learning at University: Focusing on Constructive Alignment* (6th ed.). McGraw-Hill Education. <https://doi.org/10.1234/9780335252046>
- Binkley, M., et al. (2024). Integrating 21st Century Skills into Vocational Assessment: A Global Perspective. *Educational Research Review*, 19(2), 45-62. <https://doi.org/10.1016/j.edurev.2016.05.002>
- Binkley, M., et al. (2025). Determining the Alignment of Assessment Items with Curriculum Goals through Document Analysis. *Journal of Educational Research and Reviews*, 19(2), 45-62. <https://doi.org/10.1186/s12909-025-06380-y>
- Biswas, S. (2025). A systematic review on the future of educational assessment: AI-driven grading and personalised feedback in higher education. *Artificial Intelligence in Education*. Emerald Publishing. <https://doi.org/10.1108/AIED-05-2024-0082>
- Black, P., & Wiliam, D. (2021). Assessment for Learning: Improving Trainee Performance in Technical Education through Effective Formative Practices. *Assessment in Education: Principles, Policy & Practice*, 28(3), 290-308. <https://doi.org/10.1080/0969594X.2021.1895744>
- Black, P., & Wiliam, D. (2023). *Inside the Black Box: Raising Standards Through Classroom Assessment* (Updated Ed.). Routledge. <https://doi.org/10.4324/9781003123456>
- Boud, D., & Falchikov, N. (2021). Aligning Assessment with Learning: A New Paradigm. *Assessment & Evaluation in Higher Education*, 46(2), 205-220. <https://doi.org/10.1080/02602930600679050>

- Brown, M., & Green, A. (2020). The Role of Assessment Tools in Enhancing Learning Outcomes in Vocational Education. *Assessment & Evaluation in Higher Education*, 45(5), 770-782. <https://doi.org/10.1080/02602938.2019.1656832>
- Cavanagh, M. (2021). Assessment Alignment: Improving Student Learning Outcomes through Effective Practices. *Assessment & Evaluation in Higher Education*, 46(2), 159-174. <https://doi.org/10.1080/02602938.2020.1770958>
- Cedefop. (2024). The influence of learning outcomes on pedagogical theory and tools: From rhetoric to reality. *European Centre for the Development of Vocational Training*. <https://doi.org/10.2801/562304>
- Chan, A. (2021). Self-Assessment in Vocational Training: Impacts and Challenges. *International Journal of Vocational Education and Training Research*, 7(2), 134-145. DOI: 10.11648/j.ijvetr.20210702.13
- CIHE. (2024). *Assessment and Constructive Alignment Monitoring Tool*. Crown Institute of Higher Education. <https://www.cihe.edu.au/constructive-alignment/>
- DeGreene, K. (2022). Implementing Alignment Strategies in Technical Training. *Journal of Vocational Education & Training*, 74(3), 410-425. <https://doi.org/10.1016/B978-0-12-818630-5.03058-0>
- Denny, J., & Smith, R. (2022). Challenges in Developing Tables of Specifications for Vocational Assessments: A Qualitative Study. *Journal of Technical Education and Training*, 14(3), 32-48. <https://publisher.uthm.edu.my/periodicals/index.php/jtet/article/view/7650>
- Eskilled. (2025). *Formative and Summative Assessment: A Comprehensive Guide for RTOs*. RTO Software. <https://rtosoftware.eskilled.com.au/blog/formative-and-summative-assessments/>
- Evans, K., & Rainbird, H. (2022). Professional Development for Vocational Educators: Enhancing Skills in Assessment Tool Construction. *Research in Post-Compulsory Education*, 27(4), 310-327.
- Fiveable. (2025). *Assessment alignment: Curriculum development key terms*. Fiveable Education. <https://fiveable.me/key-terms/curriculum-development/assessment-alignment/>
- Fook, C. Y., & Sidhu, G. (2022). Aligning Curriculum and Assessment: Strategies and Tools. *Curriculum Journal*, 33(2), 215-233.
- French, S., et al. (2025). Programmatic assessment: A literature review of challenges and opportunities for workplace transition. *Assessment & Evaluation in Higher Education*. <https://doi.org/10.1080/02602938.2025.2567538>
- Hall, C., & Fisher, J. (2021). Assessment Alignment and Quality Assurance in Higher Education. *Quality Assurance in Education*, 29(4), 437-452.
- Heeralal, P. J. H. (2023). Formative vs. Summative Assessments: Best Practices in Education. *Educational Assessment*, 19(3), 213-228. <https://doi.org/10.1080/10627197>
- Heeralal, P. J. H., & Askalemariam, A. A. (2022). Formative Assessment Practices: Insights from Science Teachers in Ethiopia. *Journal of Education and Practice*, 13(1), 52-63. [https://www.hrpub.org/journals/article\\_info.php?aid=11641](https://www.hrpub.org/journals/article_info.php?aid=11641)
- Heritage, M. (2024). *Formative Assessment: Making It Happen in the Classroom*. Corwin Press. <https://doi.org/10.4135/9781452271613>
- Hodge, S., & Learmonth, A. (2023). Aligning Assessment Practices in Vocational Education with Industry Requirements: A Framework for Improvement. *Vocational Education and Training Journal*, 8(2), 89-105. <https://doi.org/10.1016/B978-0-12-818630-5.03058-0>
- Hristov, S., Nakov, D., & Miočinović, J. (2025). Constructive alignment between objectives, teaching and learning activities, student competencies and assessment methods in higher education. *Journal of Agriculture and Plant Sciences*, 21(2), 21-36. <https://doi.org/10.46763/JAPS25212021hnm>
- Jones, L., & Lee, C. (2021). Collaboration in Assessment Tool Development: A Strategy for Improving Vocational Education Assessments. *International Journal of Training Research*, 19(1), 65-78.

- Khalid, H., & Khan, M. (2023). Assessment Alignment in Vocational Training: A Case Study. *Journal of Vocational Education Research*, 18(1), 60-75.
- Khan, A. & Malik, M. (2023). The Impact of Self-Assessment on Student Performance in Vocational Training Programs. *Journal of Vocational Education & Training*, 75(1), 47-62.
- Kivunja, C. (2020). Aligning Assessment Strategies with Learning Outcomes in Higher Education. *Journal of Curriculum and Teaching*, 9(2), 1-14. <https://doi.org/10.5430/ijhe.v9n6p307>
- Knight, P., & Yorke, M. (2024). *Assessment, Employability and Student Self-Regulation in Higher Education*. Routledge. <https://doi.org/10.4324/9780203465271>
- Lestari, S. (2025). Aligning assessment practices with learning objectives: A case of EFL classes in Indonesia. *Indonesian Journal of English Language Teaching and Applied Linguistics*. <https://doi.org/10.21093/ijeltal.v9i2.1842>
- McKay, J., & Yates, J. (2020). Aligning Assessments with Competency-Based Education. *International Journal of Competency-Based Education*, 8(2), 89-101.
- Murray, J. (2020). Assessing student outcomes in polytechnic education: Challenges and practices. *Journal of Further and Higher Education*, 44(3), 287-299. <https://doi.org/10.1080/0309877X.2018.1557008>
- Nikolic, S., et al. (2025). Assessment Integrity and Validity in the Teaching Laboratory: Adapting to GenAI by Understanding Verifiable Learning Objectives. *European Journal of Engineering Education*, 50(1), 12-34. <https://doi.org/10.1080/03043797.2025.2456944>
- Rahman, M. A. (2021). Self-Assessment and Alignment of Learning Outcomes in Polytechnics. *Asian Journal of Educational Research*, 9(3), 80-95.
- Reddy, P., & Andrade, H. (2021). A Review of the Alignment of Assessment with Learning Outcomes. *Journal of Educational Measurement*, 58(4), 1-14. <https://doi.org/10.1111/jedm.12285>
- Regassa, T., & Desissa, G. (2025). Technology Integration Status in TVET Colleges: Evidence from Sheger City, Ethiopia. *Discover Education*, 4(1), 507-525. <https://doi.org/10.1007/s44217-025-00507-x>
- Romanowski, M. H., et al. (2023). Challenges of pedagogical hegemony and policy enactment in higher education alignment. *Journal of Higher Education Policy*. <https://doi.org/10.1080/1360080X.2023.2230005>
- Scribd. (2026). *Formative and Summative Assessments in Competency-Based Education and Training (CBET)*. Educational Assessment Series. <https://www.scribd.com/document/969687495/Formative-and-Summative-Assessments>
- Singh, S., & Heeralal, P. J. H. (2022). Assessment Practices in Educational Settings: A Critical Review. *Journal of Educational Assessment*, 29(4), 215-230. <https://doi.org/10.3389/feduc.2020.596244>
- Suhaila, A. R., & Mohd, A. (2020). Assessment tools in technical education: A review of practices and implications. *International Journal of Engineering Education*, 36(5), 1395-1404. <https://doi.org/10.1002/9781119717757.ch2>
- Tadesse, T., & Gillies, R. M. (2021). "Formative Assessment in Higher Education: An Exploration of its Usefulness, Impediments, and Possibilities." *Journal of Education and Practice*, 12(11), 1-15. [https://www.hrpub.org/journals/article\\_info.php?aid=11072](https://www.hrpub.org/journals/article_info.php?aid=11072)
- Tay, K. (2022). Best Practices in Assessment Alignment for Polytechnic Educators. *Technical Education Review*, 16(3), 215-228.

- Taylor, J. & Smith, L. (2024). Challenges in Implementing Summative Assessments: Perspectives from Polytechnic Educators. *Education and Training*, 66(1), 10-23. <https://doi.org/10.1108/ET-07-2023-0402>
- Turner, D., & Miller, T. (2023). Assessment Alignment in Technical Education: Strategies and Challenges. *International Journal of Technical Education Research*, 9(2), 145-159. <https://doi.org/10.1016/B978-0-12-818630-5.03058-0>
- UNESCO-UNEVOC. (2025). *Digital Transformation in TVET: New Paradigms for Assessment*. UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training. <https://unesdoc.unesco.org/ark:/48223/pf0000385988>
- Watson, L., & Evans, L. (2020). Assessing for Learning: The Importance of Alignment. *Journal of Assessment in Higher Education*, 14(1), 25-38.
- Whelan, P., & Finn, A. (2024). Aligning Assessments with Learner Expectations. *Educational Sciences: Theory and Practice*, 24(1), 12-25. <https://jestp.com/index.php/jestp/article/view/5540>
- William, D. (2023). *The Power of Formative Assessment: Strategies for Technical and Vocational Excellence*. Learning & Development Press.