

HIGH-QUALITY LEARNING RESOURCES: A CORNERSTONE OF INCLUSIVE TECHNICAL VOCATIONAL EDUCATION AND TRAINING

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Abstract: Technical Vocational Education and Training (TVET) is a critical driver of innovation, economic growth and progress but ensuring equal access to quality Technical Vocational Education and Training (TVET) for all remains a significant challenge, high quality learning resources plays a vital role in promoting inclusion in Technical Vocational Education and Training (TVET) and their importance cannot be overstated. This review paper synthesises the role of high quality learning resources in promoting inclusion in Technical Vocational Education and Training (TVET). Seven key points were highlighted which are bridging the gap for language barrier, support students with disabilities, foster inclusive learning environments, provides real-world examples and applications, encourage peer to peer learning, support teacher professional development and bridge the gap for underrepresented groups which promote collaboration and team work. It's important for continue update and revision of learning resources to reflect latest research, technologies and industrial needs. The review highlighted the critical need for high quality learning resources to ensure that Technical Vocational Education and Training (TVET) is accessible, engaging and effective for all students regardless of their background or abilities with the importance of prioritizing the development and implementation of high quality learning resources in Technical Vocational Education and Training (TVET) to promote a more inclusive and equitable society.

Keywords: High quality learning resources, Inclusive Technical Vocational Education and Training (TVET).

Introduction

High quality learning resources by the propello crew (2022) are content-rich educational materials that are: standard aligned, up-to-date, readily accessible and easy-to-use. They are highly engaging and designed to meet the needs of students across a spectrum of cultures and abilities. Technical Vocational Education and Training (TVET) is a crucial driver of innovation and economic growth, but its accessibility and effectiveness vary widely. The underrepresentation of diverse groups in technical fields is a persistent issue hindering the development of inclusive and innovative solutions. High quality learning resources have the potential to bridge this gap, but their development and implementation require careful consideration. This review aims at exploring the role of high quality learning resources in inclusive Technical Vocational Education and Training (TVET) as a tool to promoting diversity, equity and inclusion. Is a form of education that focuses on teaching students the skills and knowledge needed to succeed in technical or vocational field's It is designed to provide students with practical, hands-on learning experiences that can be directly applied to the modern workforce (Patrick, 2023).

The main benefits of Technical Vocational Education and Training (TVET) gives students the opportunity to learn valuable skills that are in high demand across a variety of industries, this helps by providing students with a strong foundation in fields like automobile technology, building technology, electrical electronics, metalwork technology and woodwork technology with programing languages, engineering principles, computer science and, information technology to prepare them for rewarding and successful careers .Technical Vocational Education and Training (TVET) helps to foster critical thinking and problem-solving skills which are essential in today's fast-paced, rapidly changing world and are applicable across a wide range of fields and industries, by learning how to approach complex

problems and find creative solutions, well equipped to adapt to new challenges and succeed in a variety of environments. Technical Vocational Education and Training (TVET) is an important investment for both individuals and society as a whole, and is an essential component of 21st century learning as the world is becoming more reliant on technology in all aspects of life. Technical skills are in high demand in a variety of industries due to the rapid pace of technological advancement in order to keep up with the constantly evolving landscape of technology, it is essential for individuals to continuously learn and adapt. Technical Vocational Education and Training (TVET) provides the necessary skills and knowledge by giving individuals the ability to succeed in a variety of tech-focused careers, provides abundance of job opportunities to those with technical skills in industries. This provides strong foundation for those interested in pursuing careers in STEM Field (Science, Technology, Engineering and Math)

Reviews

Bridging the language gap in learning, high quality learning resources can be translated into multiple languages in this digital age through the use of learning management system (LMS) according to Interpro-Translation Solution, (2024) it has emerged as powerful tool for educators and training. The platforms provide a digital environment where schools and organizations can create, deliver and manage learning content. LMS's have transformed how we approach education making it more flexible, accessible and efficient. It is a global inclusivity to exploring effective strategies and future trends which offers valuable insights for educator with focus on promoting accessibility and engagement. It creates a truly inclusive learning environment, it involves converting the content such as course materials, quizzes, discussions and more from one language into another to help bridge the language gap, making learning accessible to a wide audience. LMS localized course description and titles ensuring that learners can easily navigate and select courses in their preferred language, it also enhances language access and inclusivity, creating a more welcoming and accessible learning environment. The author also stated that internet has made education and training accessible worldwide, e learning has gone beyond traditional classrooms, reaching every corner of the globe. As a result, learners from diverse linguistic backgrounds can access courses from prestigious institutions and organizations irrespective of their geographical location, it has revolutionized education enabling lifelong learning and skill development. Learning management system (LMS) translation promotes inclusivity and accessibility, it ensures that individuals who speak languages other than English can access and benefit from the courses, which is crucial for non-native English speakers and individuals with varying levels of language proficiency, it eliminates language barrier, providing equal learning opportunities for all.

Supporting students with disabilities, high quality learning resources can support students with disabilities by promoting adaptable learning environment and building awareness of the importance of differentiated learning, in establishing an inclusive education system. As asserted by Kurrt, (2006) a successful way of promoting an adaptable learning environment is using Universal Design for Learning (UDL). This approach recognizes that all students with and without disabilities learn in different ways when the curriculum is designed to meet the needs of "average" students, it fails to address the natural diversity and backgrounds that exist in all classroom. Research has revealed that teachers find UDL, to be an effective instructional approach and it enables teachers to better engage diverse groups of students. The author also states that UDL may also be an effective technique in countries that may not have a disabilities identification system in place, by helping teachers to support diverse learning needs even without knowing which student may have disabilities, particularly in resources constrained contexts, the demands on teachers are great and achieving adaptable learning teaching and learning materials are developed, how classrooms are set up and how teachers are trained can go far in meeting UDL goals, for UDL "is a set of principles for

curriculum that give all individuals equal opportunities to learn” National Centre on Universal Design for Learning, (2016). According to Rose & Meyer, (2002) the followings are strategies teacher can use UDL:

1. Use multiple strategies to present the content: Use variety of techniques including case studies, music, role play, cooperative learning, hands on activities, and field trips, variety of learning contexts like individuals, pair group work, peer learning and field work.
2. Use variety of materials; To present, illustrate and reinforce new context, use different materials such as online resources, manipulative and existing textbooks and supplemental reading books.
3. Provide cogitative supports: Present background information for new concepts using pictures, objects and other materials that are not lecture based, scaffold students learning by providing a course syllabus, outlines, summaries and study guides.
4. Teach to a variety of learning styles: Build movement into learning and give both oral and written instructions for students who learn auditory or visually.
5. Provide flexible opportunities for assessment: Enable students to demonstrate

Fostering inclusive learning environments, high quality learning resources aims at creating inclusive learning environment by providing multiple means of representation, action, expression and engagement for all students, regardless of their learning abilities or disabilities, it emphasizes the importance of designing instructional materials, methods and assessments that can be accessed, understand and effectively used by a wide range of learners (Capp, 2017). UDIL principles can be applied to various education settings including, traditional classrooms, online environments and blended learning approaches to create flexible and accessible learning experiences that minimize the potential for all students to succeed, support the goal of equity in education by ensuring every learner has an equal opportunity to engage in meaningful learning and achieve their full potential.

According to the author, UDL provides a framework that addresses learners need by promoting inclusive practices and creating learning environments that supports the success of every student, it provides numerous benefits for students with diverse learning needs, educators can create more inclusive and supportive learning environments for all students Royerset *al* (2018). Educators can utilize classrooms space effectively to create an inclusive learning environment that meets the diverse needs of all students, Minges, *et al* (2016) for physical accessibility, flexibility and students input allows for a supportive and inclusive space that promotes engagement, collaboration and equitable learning opportunities, incorporate assistive technologies and tools in designing inclusive learning environments, educators can create inclusive and accessible learning experiences for students with diverse needs (Hasselbring & Glaser, 2000) these technologies have the potential to level the playing field, promote independence and enhance students ability to fully participate in the educational process. According to Metatla *et al* (2019) inclusive learning environment is by ensuring accessibility in digital resources and platforms which helps in:

- i. Equal access: Ensuring that students with disabilities have equal access to digital and online learning materials and activities by providing accessible context, students with visual impairments, hearing impairments, motor disabilities or cognitive disabilities can engage with the materials on an equal footing with their peers which fosters inclusivity and avoids creating barriers to learning.
- ii. Diverse learning needs: Students have diverse needs preferences and abilities, by incorporating accessibility features such as alternative text for images, captions for videos or compatibility with screen readers, it accommodates different learning styles and preferences. It allows students to access information in ways that work best for them, making the learning experiences more inclusive.

- iii. Flexibility and customization: Accessible digital resources and platforms often offer features that allows for customization and flexibility, students can personalize settings based on their individual needs such as adjusting font sizes, colours, or contrast to enhance readability. It empowers students to adapt the learning environment to their specific requirements, promoting a more inclusive and personalized learning experiences.
- iv. Multiple means of representation: Accessibility features support the principle of providing multiple means of representation in Universal Design for Learning (UDL) by providing text alternative for visual content ensures that students who cannot perceive images can still access the information. This widens the range of representation options, ensuring that all students can comprehend and engage with the content.
- v. Collaboration and interaction: Accessible digital resources and platforms facilitates collaboration and interactions among students, features such as real-time closed captioning, discussion boards or chat factions enhance communication and participation for all students including those with hearing impairments or communication difficulties. This promotes inclusive collaboration and equal participation in learning activities.
- vi. Universal Design: Incorporating accessibility in digital resources and platforms aligns with the principles of universal design, it focuses on designing products and environments that are accessible and usable by as many people as possible regardless of their abilities or disabilities by ensuring accessibility, it embrace the concept of universal design and creates a learning environment that is inclusive for all students.
- vii. Positive learning experiences: Accessible digital resources and platforms contribute to positive learning experiences for all students, to access and engage with materials easily, it reduces frustration and enhances their motivation and confidence which leads to increased student's satisfaction, participation and overall learning outcomes.

Providing real-world examples and applications, high quality learning resources can provide real-world examples and applications of classroom learning through Project Based Learning (PBL) which helps students collaborate with peers around the world and apply their learning to make a difference by Suzie, (2017) it helps them apply what they are learning to tackle real issues and putting meaningful opportunities of their problem solving skills to work. Real examples provide concrete applications to knowledge and skills learned in the classroom as they relate to students themselves and society, it encourages students to be aware of the choices they make and how they fit into a greater societal context. Real-world examples demonstrate the complexity and unpredictability of real issues as such, can stimulate critical thinking. According to Carleton college, (2017) Multiple pedagogic strategies can be used to incorporate real examples into the classroom. These includes teaching with case studies or with investigative case, field experiences such as field labs or students research and using local data and examples to teach about issues. Connecting local examples with global challenges can also be beneficial for expanding the context of larger scale issues such as water quality and quantity could be both a local issue as well as a global issue or those that are non-local, but may still affect students (drought or fuel subsidy which affects local food prices). Real-world problems are meaningful and applicable to students lives, either directly or indirectly. Critical thinking for efficient problem solving is a prized skill as supported by Dilip (2024) says by incorporating concrete situations into the lessons, teachers can foster critical thinking and problem- solving skills in students, it exposes students to real scenarios where they are required to apply the learned information which broaden their comprehension and equips them for instance where critical thinking is essential. For instance, physic lesson exploring the concept of projectile motion, instead of relying on equations, introduce the example of launching a projectile, such as throwing a ball, this scenario will prompt students to analyse variables like angle and force, instigating critical thought and problem-solving as they conceptualise the trajectory.

Encouraging peer to peer learning, high quality learning resources can facilitate peer to peer learning through collaborative and cooperative learning strategies which promote engagement, active participation and holistic development among all students, irrespective of their leaning styles or abilities. Peer to peer interactions and collaboration can be facilitated in the following ways (Gillies, 2016)

- i. **Structured group activities:** Educators design structured group activities that require students to work together towards a common goal. These activities may include group projects, discussions, debates, problem-solving tasks or peer teaching, by actively engaging in collaborative tasks, students develop their teamwork and communication skill while fostering a sense of shared responsibility.
- ii. **Group formation:** Careful consideration is given to group formation to ensure a diverse mix of abilities, learning styles, and backgrounds. Grouping students heterogeneously allows for peer support and learning from one another. Educators may also strategically assign roles within the groups to ensure equitable participation and encourage students to leverage their strengths.
- iii. **Clear expectations:** Clear expectations are set for group work, including individual and group accountability. Students are provided with guidelines on how to collaborate effectively, actively listen to others and value diverse perspectives. Clear guidelines help create a positive and inclusive group dynamic where all students feel valued and empowered to contribute.
- iv. **Supportive environment:** Educators create a supportive environment that encourages open communication, trust and respect among students. They establish norms for collaborative interactions and facilitates discussions to ensure all voices are heard. Educators also foster a sense of psychological safety, where students feel comfortable taking risks, sharing ideas and seeking help from their peers.
- v. **Cooperative learning structures:** Cooperative learning structures, such as think-pair-share, jigsaw or reciprocal teaching are used to scaffold collaboration and ensure active participation of all students (Barrett, et al, 2014). These structures provide students with defined roles and responsibilities, promoting equal engagement and shared learning experiences.
- vi. **Peer feedback and reflection:** Peer feedback and reflection are integrated into the collaborative learning process. Students are encouraged to provide constructive feedback to their peers, promoting self-assessment and continuous improvement. Reflective activities help students examine their own contributions, identify strengths and areas of growth and develop metacognitive skills.
- vii. **Monitoring and intervention:** Educators monitor group dynamic and progress to ensure equitable participation and address any issues or conflicts that may arise. They provide timely support and intervention, facilitating effective communication and resolving conflicts to maintain a positive and inclusive learning environment.
- viii. **Reflection on collaboration:** Educators guide students in reflecting on their collaborative experiences, highlighting the value of working together and the skills developed through collaboration. This reflection fosters student's self-awareness, appreciation for diverse perspectives, and the importance of collaboration in real-world contexts. By implementing these strategies, educators can harness the power of peer interaction and collaboration to create inclusive learning environments. Students benefit from diverse perspectives, shared responsibility, enhanced communication skills and a supportive community of learners.

Supporting teacher professional development, high quality learning resources helps educators to stay up to date with latest resources and technologies. Honigsfield & Dove (2012) stated that professional development and collaboration of educators are essential for designing inclusive learning environments. Through professional development programs, educators

enhance their knowledge and skills in inclusive practices, while collaboration allows them to share their best practices and collectively solve problems. Collaboration also promotes teamwork, co-teaching and alignment of approaches across classrooms. Additionally, it provides support, mentoring and a reflective practice culture, by engaging in professional development and collaboration in UDL, educators can better equip to create inclusive learning environments that meets the needs of all students. this can be leveraged by a focus on: By providing training and development in UDL, principles and practices, can equip educators with the knowledge, skills and mind-set necessary for designing inclusive learning environments. (Xiao *et al* 2023). It can enable them to create an environment where all students felt valued, supported and engaged in their learning journey, leading to improved outcomes and experiences for all learners (Rose 2001). It can enhance their teaching skill through; Educators gaining a deep understanding of UDL principles and its application in the classroom, UDL training which empowers educators to provide personalized instruction that meets the diverse needs of their students, Educators learning differential instruction effectively, offering multiple options to engage students with diverse learning needs, UDL training which equips educators with knowledge of assistive technologies that enhance accessibility and support diverse learners, UDL training which promotes a culture of reflection and continuous improvement in instructional practices. UDL training which emphasizes on creating a positive and inclusive classroom climate and UDL training which encourages collaboration among educators, specialists and support staff for designing inclusive learning environments. Glazer & Hannafin (2006) supported that sharing best practices and resources within the education community fosters collaboration, professional growth and access to valuable instructional strategies and resources. It creates a supportive network of educators who can collectively work towards designing inclusive learning environments that benefit all students.

Bridge the gap for the underrepresented groups in education according to Dharmendra, (2024) refers to demographic segments of the population that face significant disparities or lack proportional representation in educational settings, they encounter barriers that hinder their access to quality education and impede their academic success these includes ethnic and racial minorities, low-income families, individuals with disabilities, linguistic minorities, gender minorities, geographically isolated or rural communities and first-generation college students. It's important to recognize that individuals may belong to multiple underrepresented groups simultaneously and intersectionality, plays a crucial role in understanding the compounded barriers and challenges they face in education. The author states that bridging the gap in underrepresented groups requires targeted interventions, policy reforms and systemic changes to promote equity, diversity and inclusion in educational institutions. The development of effective strategies and intervention aimed at bridging the gap and promoting educational equity for all, it also draws the attention of policymakers, educators, community leaders and stakeholders to enact meaningful change and create a more just and equitable educational system.

The role of high quality learning resources in inclusive Technical Vocational Education and Training (TVET); high quality learning resources play a vital role in promoting inclusive Technical Vocational Education and Training (TVET) through:

- i. Bridging the gap for underrepresented groups. High quality learning resources can provide accessible and engaging learning materials for the underrepresented groups for active participation.
- ii. Offer an interactive and immersive experience. High quality learning resources helps in enhancing student's motivation and understanding.
- iii. Facilitate personalized learning. High quality learning resources helps in catering diverse learning materials for personalized learning to meet diverse needs and styles.

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