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Analysis of The Implementation of The Project Based Learning Model on Students' Learning Motivation in The Use of Technology

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ABSTRACT

This research explores the effectiveness of the Problem-Based Learning (PBL) model integrated with technology in enhancing student learning motivation. PBL is an instructional approach that places students at the center of the learning process, where they are confronted with real problems that require solutions. In this study, qualitative methods were used to analyze descriptive data in the form of oral and written information as well as observed behavior. The research results show that the integration of technology in PBL provides various significant benefits. Technology enables broad and rapid access to information, making learning more interactive and engaging, as well as facilitating effective collaboration and communication. Additionally, technology allows for quick and personalized feedback, self-directed learning, and individual adjustments according to students' pace and learning styles. The use of gamification elements in learning has also been proven to enhance students' intrinsic motivation. Overall, the integration of technology in Project-Based Learning (PBL) has a positive impact on students' learning motivation, as well as improving critical, creative, and collaborative thinking skills. This research emphasizes that the effectiveness of technology as a supportive tool greatly depends on its use in the appropriate and directed learning context. This finding highlights the importance of implementing PBL integrated with technology to enhance the quality of education in the digital age, as well as to prepare students with the 21st-century skills needed to face global challenges.

1. INTRODUCTION

The learning approach known as Problem-Based Learning (PBL) positions students as the focal point of the learning process, wherein they are presented with authentic challenges that necessitate resolutions. In contrast to conventional methods that prioritize the teacher's transmission of material, this model places greater emphasis on the students' own process of inquiry and problem-solving.

Within the framework of contemporary education, Problem-Based Learning (PBL) is regarded as having the potential to improve students' critical thinking ability, creativity, and collaboration skills. (Trianto, 2010) defines PBL as a learning paradigm that is grounded on a multitude of problems that necessitate investigation and the development of practical solutions. This viewpoint is consistent with the assertion made by (Surya, 2017) that Problem-Based

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Learning (PBL) serves as a foundation for students to learn and gain knowledge, as well as fundamental principles of learning, by presenting genuine issues.

The PBL method comprises a series of systematic stages, specifically: guiding students towards the problem, arranging learning activities, fostering autonomous and group learning, consolidating and presenting work outcomes, and assessing and appraising the problem-solving process (H.E. Mulyasa, 2017). Not only do these procedures direct students' attention to the problem, but they also enhance their skills in questioning, conducting experiments, and integrating information from many sources to overcome the obstacles they encounter. An analysis of the implementation of the PBL paradigm in boosting student learning motivation, specifically in the use of technology, is conducted in this study using a qualitative approach. The qualitative approach was selected due to its ability to generate descriptive data manifested as vocal or written material, as well as observed actions. This study seeks to comprehend the impact of incorporating technology into Project-Based Learning (PBL) on students' motivation to learn, and to pinpoint the elements that contribute to the efficacy of this learning approach.

In the current age of globalization and swift technological progress, the ability to quickly and widely access knowledge, engage in more interactive learning, and collaborate effectively have become crucial elements in modern education. In addition to facilitating independent and self-paced learning, technology also offers prompt and individualized feedback, as well as the use of gamification to boost students' intrinsic motivation. Therefore, the incorporation of Problem-Based Learning (PBL) together with technology is anticipated to yield a favorable influence on students' willingness to learn, equip them with the relevant abilities required to confront worldwide issues in the 21st century, and establish a more vibrant and engaging learning atmosphere. This study aims to investigate the efficacy of the Problem-Based Learning (PBL) learning paradigm in this particular setting and offer suggestions for enhancing its application in the future.

2. THEORETICAL FRAMEWORK

Problem-based learning (Trianto, 2010) is an educational approach that relies on the exploration of multiple relevant problems. Indeed, it is genuine research that necessitates practical resolutions to tangible challenges. This viewpoint is consistent with the problem-based learning approach proposed by (Surya, 2017), which entails challenging students with genuine problems as the first stage in acquiring knowledge or fundamental concepts from prior learning. Students have a novel stimulus to actively participate in.

According to (H.E. Mulyasa, 2017), problem-based learning can be executed by following the subsequent procedures:

1. Facilitating pupils' orientation towards the problem. This phase is implemented to direct the attention of pupils towards the educational challenge that serves as the subject of study.
2. Coordinating educational activities. Organisation of learning is a task in which pupils pose several questions pertaining to the given problems.
3. Engaging in self-directed and collaborative learning in person. At this point, students engage in systematic experiments to gather data in order to address or resolve the topic under investigation.
4. Consolidating and delivering the findings of their research. Students integrate quantitative data acquired from experiments with diverse information collected from many sources (communication).
5. Examining and assessing the process of problem-solving. Following the acquisition of solutions to the given issues, students proceed to analyze and assess them. Penalaran.

The aforementioned problem-based learning model processes can be summarized based on the conclusions drawn from several expert viewpoints. Orienting students to the problem, organizing students for learning, leading individual and group research, producing and presenting work outcomes, and analyzing and evaluating the problem-solving process are the steps of the problem-based learning approach.

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3. RESEARCH METHOD

This study use a Qualitative Method to provide descriptive data in the form of spoken or written material, as well as closely observed behavior. Furthermore. In this study, Moleong (Kristina Pasaribu, 2016) serves as the primary informant. The data collected is secondary, derived from existing material obtained through literature investigations. An analysis of the implementation of the Project Based Learning model on students' learning motivation in the usage of technology is the objective of this research.Using many data gathering techniques presented in the form of accessible articles and news.

4. RESULTS AND DISCUSSION

The choice of a suitable learning model greatly influences students' willingness to learn, as, if the teacher successfully implements the learning model, the learning process will occur efficiently. The impact of problem-based learning models on student motivation is assessed by evaluating the educational achievements of students who have successfully finished a certain educational curriculum. The instructor continues to employ conventional pedagogical approaches, resulting in pupils experiencing ennui and a sense of being manipulated by the teacher. The majority of passive learners often remain seated, engage in note-taking, and passively absorb the teacher's instructions, with little inquiries. An innovative educational approach is necessary to successfully inspire students to engage in learning and attain favorable outcomes by implementing a problem-based learning (PBL) model that can augment students' motivation to learn. The findings suggest that the problem-based learning approach significantly influences students' motivation to learn.Motivation to learn is considered a prevailing condition in an individual, marked by the inclination to engage in an activity with the aim of attaining a specific objective. (Sardiman A.M, 2016) In general, learning motivation serves as the main catalyst for students. Collaborative learning activities characterised by a harmonious atmosphere and a well-structured learning process aimed at achieving the students' intended objectives.

Leveraging Technology to Enhance Learning Motivation in Problem-Based Learning (PBL) Models: Problem-Based Learning (PBL) is an educational approach that prioritizes the systematic resolution of problems in order to improve students' abilities in critical and creative thinking. Technology can exert a substantial impact on students' learning motivation within this particular setting. The following are specific effects of technology implementation on learning motivation in the Problem-Based Learning design:

1. Broad and Rapid Information Access: Technology enables swift and comprehensive access to diverse sources of information. This enables students to actively seek and locate pertinent knowledge within the context of the problems they are resolving, therefore augmenting their inquisitiveness and drive.
2. Enhanced Interactivity and Engagement in Learning: The incorporation of technology, such as simulations, interactive movies, and learning software, can augment the learning process by making it more captivating and pleasurable. Students exhibit higher levels of motivation when they engage in interactive and pleasurable learning activities.
3. Efficient Collaboration and Communication: Technology facilitates seamless cooperation among stakeholders, both at a national and global level. Collaborative web applications such as Google Docs, Slack, or Microsoft Teams enable students to collaborate on completing projects, exchanging ideas, and responding to suggestions from each other. This might strengthen their desire to attain unity and group assistance.
4. Accelerated and Customized Feedback: Technology empowers educators to deliver prompt and precise feedback to students. Provision of timely and constructive criticism can facilitate students' comprehension of their areas of proficiency and areas for improvement, while also providing motivation to persist in their learning and self-improvement.

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5. Self-Directed Learning and Individual Adjustment: Technology enables students to acquire knowledge at their preferred speed and in accordance with their own learning preferences. Adaptive learning programs and e-learning platforms enable the tailoring of information to suit individual requirements, therefore augmenting motivation by providing a more personalized and pertinent learning experience.
6. Gamification: In the realm of education, the incorporation of gamification components such as points, badges, and leaderboard rankings has the potential to augment students' inherent drive. The implementation of gamification promotes a heightened level of competitiveness and involvement, therefore motivating students to pursue more significant accomplishments in their educational endeavors.

In general, the incorporation of technology in the Problem-Based Learning (PBL) learning approach can offer several advantages that favorably influence students' willingness to study. Nevertheless, it is crucial to bear in mind that technology is strictly a supplementary instrument, and its efficacy is heavily contingent upon its utilization within the appropriate and focused educational environment.

The present period of technology can be characterized as a human-centric civilization reliant on technology, wherein individuals are required to effectively manage and excel in technology, and thereafter cooperate to establish a community that will uphold the information we possess. With the advent of technological globalization, society is now faced with technology that enables access to a virtual environment that closely resembles a physical one.

Education in the current technological age. These competencies in the 21st century, as defined by (Trilling and Fadel, 2009), encompass three primary categories of abilities:

(1) life and career skills,
(2) learning and innovation skills, and
(3) information media and technology skills.

The 21st-century skills advocated by the Director General of Basic Education and Secondary Education of the (Ministry, 2017) of Education and Culture encompass four distinct categories: a) analytical reasoning and problem-solving abilities, b) effective communication abilities, c) ingenuity and originality,d) collaborative abilities. Collaboration.

The acquisition of 21st-century skills is necessary for students in educational institutions to effectively confront the obstacles and requirements of the contemporary technology age. The acquisition of these 21st-century abilities can be facilitated by the utilization of a constructivist learning paradigm that prioritizes student-centered and experimental approaches. Examples of such models include inquiry training, inquiry jurisprudence, group investigation, and project-based learning.

Problem-Based Learning (PBL) is an educational approach in which students are presented with authentic health problems, which serve as catalysts for academic learning. PBL is regarded as more efficacious in comparison to traditional curricula that depend exclusively on lectures and practical sessions. The learning activities in this Problem-Based Learning (PBL) program encompass expert lectures, small group discussions, laboratory practicals, and clinical skills practice. Considering the ideal nature of the notion supported by this method, it is expected that students will attain satisfactory learning results through this activity.

The learning approach known as constructivist learning is grounded in the principle of constructivism, which posits that students actively construct the knowledge they acquire in order to attain a comprehensive understanding. The dynamic interplay between an individual and their environment gives rise to comprehension; the existence of cognitive conflict serves as a catalyst for learning, and knowledge can be established through experimentation. According to (Davis & Harden, 1999) and (Dolman et al, 2005), the presence of issues, the activation of past information, and the provision of chances to expand on knowledge are key factors in facilitating constructive learning in Problem-Based Learning (PBL). Knowledge elaboration can be enhanced by engaging in discussions, taking notes, or participating in question-and-answer sessions. This process of elaboration facilitates the interchange of

knowledge among students, therefore stimulating their existing knowledge that becomes valuable in forging connections between new information and their existing understanding.

Self-directed learning refers to a learning process in which the student has complete autonomous control over their own learning process. Within Problem-Based Learning (PBL), self-directed learning is achieved by the systematic activities of planning, monitoring, and assessing the learning process.

Collaborative Learning refers to a participatory learning approach where two or more individuals engage in small groups to acquire knowledge. Collaborative learning is achieved by establishing a shared learning objective that promotes interaction among students, distributing tasks and responsibilities appropriately to enable active participation from all members, and fostering mutual interdependence among students where each student contributes information and understanding, so enhancing the learning process.

Contextual learning refers to the process of acquiring knowledge that is specifically tailored to the contexts or situations in which it will be directly applied. Obtaining or comprehending knowledge will be facilitated by its presentation in authentic circumstances and contexts. For instance, students can learn by being exposed to scenarios that they may encounter in their future careers as doctors.

Elevating the quality of a certain variable can have a positive impact on the quality of other variables, so potentially improving the overall achievement of pupils. (Schmidt and Gijselaers, 1990). The theoretical model shown above clearly demonstrates that the instructor exerts a direct impact on group dynamics, thereby influencing the level of success achieved by the students.

Rationale and Limitations of PBL: The adoption of a pedagogical approach, such as PBL, has both merits and drawbacks. References: (Davis and Harden, 1999) and (Wood, 2003). The PBL approach offers the benefit of equipping students with knowledge that is highly applicable to the future circumstances they will encounter. This is because the curriculum is designed to address real-life clinical issues. Systematic problem-solving (PBL) enhances the effectiveness of learning by enabling the identification of essential knowledge concepts, therefore avoiding an overwhelming learning load on pupils. Project-Based Learning (PBL) contributes to the development of students' fundamental abilities in problem-solving, communication, and teamwork. Practical problem-based learning (PBL) encourages students to assume greater accountability for their learning approaches, a quality that is essential for lifelong learning. The Problem-Based Learning (PBL) approach enables the delivery of a comprehensive curriculum instead of one segregated by academic fields. Furthermore, the efficacy of PBL is in its ability to enhance student motivation by necessitating their active participation in the learning process and fostering a deeper level of learning. Moreover, students engage their existing knowledge while acquiring new information. Next, pupils construct their own interpretations that correspond to their comprehension, therefore resulting in enduring memory.

Aside from the aforementioned advantages of PBL, (Davis and Harden, 1999) have highlighted its drawbacks, such as the tendency of pupils to imitate their instructors, therefore causing them to lose role models in their learning process. The PBL approach lacks the ability to inspire instructors to impart knowledge to their students. The tutorial actions effectively restrict the chance for educators to impart their expertise, since they solely assume the role of facilitators. During problem-based learning (PBL), students participate in unstructured brainstorming, which might result in the knowledge acquired through PBL being inadequately structured. Project-Based Learning (PBL) necessitates certain abilities that are not universally possessed by educators. In PBL, the teacher assumes the role of a facilitator, but they often continue to teach in the same manner that they were conventionally taught.When opting to use the PBL model, a substantial financial investment will be necessary to accommodate the demands of a substantial number of teachers, the provision of learning resources like libraries and information technology, and the allocation of designated areas for small group discussions. Furthermore, Problem-Based Learning (PBL) necessitates students to allocate additional time

for studying, particularly as they are required to independently locate the necessary resources for learning.

5. CONCLUSION AND SUGGESTIONS

The problem-based learning (PBL) approach is a highly efficient learning paradigm that effectively enhances student motivation and skills. This study revealed that the integration of problem-based learning (PBL) with technology offers numerous notable advantages within the framework of contemporary education. Technology enables pupils to have wider and expedited access to educational resources. The ability of students to look for and locate material that is pertinent to the challenges they are resolving serves to augment their inquisitiveness and drive to acquire knowledge. Implementing technology like interactive video simulations and learning programs enhances the learning process by increasing its level of engagement and enjoyment. This fosters dynamic student engagement in the learning process, which is essential for the effectiveness of Problem-Based Learning (PBL). Technological advancements enable efficient cooperation and communication among pupils. Collaborative systems such as Google Docs and Microsoft Teams facilitate seamless collaboration among students, whether in close proximity and across the globe.

Technological tools enable educators to deliver prompt and individualized feedback to students. Timely and precise feedback enables students to evaluate their areas of proficiency and areas for improvement, while also providing motivation to persist in their learning and self-improvement. Advancements in technology facilitate self-directed learning and personal customization. The ability for students to learn at their own pace and in accordance with their unique learning styles serves to augment motivation by providing a more individualized and pertinent learning experience. Incorporating gamification features such as points, badges, and challenges into the learning process can augment students' inherent drive. Gamification promotes greater active and competitive student participation in the learning process. In general, the use of technology in the collaborative problem-based learning (PBL) approach has a substantial beneficial influence on students' motivation to learn. Problem-Based Learning (PBL) not only improves critical, creative, and collaborative thinking abilities, but also equips students with the advanced skills required to confront global issues in the 21st century. Nevertheless, the efficacy of technology as a supplementary instrument heavily relies on the careful and focused utilization of such technology within the suitable learning environment.

This study demonstrates that technology-supported problem-based learning (PBL) can establish a dynamic and interactive learning environment, therefore facilitating student attainment of improved learning results. Therefore, the successful integration of Problem-Based Learning (PBL) with technology emerges as a crucial element in improving the effectiveness of education in the current digital age.

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