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Development Of Classical Guidance Media Using Virtual Reality (Vr) Technology To Build Student Resilience In Earthquake-Prone Areas

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Abstract

Guidance classical as service preventive measures in schools in vulnerable areas earthquake earth For build resilience is very necessary For realized, but its implementation Still hampered by the limitations of conventional media which do not capable provide experience Study immersive and realistic related situation earthquake Earth. Research This aim For construct runway theoretical and conceptual for development of guidance media classical using Virtual Reality (VR) technology which is specific designed For build resilience students in vulnerable areas earthquake earth. Type research used is studies library or library research with data sources in the form of books, articles journal scientific, and reports results research. Research results show four findings main. First, students in disaster prone areas earthquake earth own need complex psychology covering need for security, regulation emotion, efficacy self, support social, and meaning positive, all of which is component former resilience. Second, guidance classical effective as a preventive strategy For build resilience if designed with approach experiential and multi-modal. Third, VR technology has potential wide application in guidance and counseling, especially through his abilities present simulation earthquake an immersive, safe, and controlled earth For therapy exposure, training skills, and psychoeducation interactive. Fourth, synthesis third findings the produce framework conceptual integrated media development theory resilience, learning experiential, and presence theory in VR, with notice principle design instructional, gamification, adaptation cultural, as well as activity reflective pre and post VR Implementation results study realized through development VR media prototype with scenario simulation earthquake multi- storey equipped guide facilitation, sheet reflection, and instruments assessment resilience contextualized.

Keyword: Guidance Classical, Virtual Reality, Resilience Students, Earthquake Earth.

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INTRODUCTION

Indonesia is one of the countries with level vulnerability seismic the highest in the world located at the confluence three plate tectonics main, namely Indo-Australian Plate, Eurasian Plate, and the Pacific, so that make almost the entire archipelago vulnerable to disaster earthquake Earth. Data from the Meteorology, Climatology, and Geophysics Agency show that every the year Indonesia experienced thousands of times incident earthquake earth with various magnitude, some of which potential cause damage infrastructure and casualties. Reality geographical This put Indonesian society, including population students in it, in condition exposed threat earthquake earth in a way continuous and ongoing throughout life they. Exposure chronic to threat disaster natural kind of This has proven cause impact significant psychological impact, especially in groups children and teenagers who development Still is at in stage formation identity, regulation emotions and skills unfinished coping fully mature. Students who attend school in disaster-prone areas earthquake earth undergo daily life they in shadows uncertainty and potential occurrence disasters that can happen When just without warning, a conditions that are cumulative can erode mental health, disturbing concentration learning, and inhibiting achievement tasks essential development. The state of This demand existence attention Serious from educators and stakeholders policy For develop intervention strategies that do not only focus on aspects preparedness physical and technical only, but also touching dimensions psychological in the form of development mental capacity to rise and adapt in face situation adversity caused by disasters earthquake earth (Hidayati et al., 2023).

Draft resilience psychological has become focus increasing attention increase in literature disaster contemporary as construct the key to success ability individual For maintain function healthy psychology although exposed to events traumatic or condition prolonged adversity. Resilience No just absence psychopathology, but rather is capacity adaptive positive that allows individual For rise back, study from experience difficult, and even experience growth post -traumatic. In context students in vulnerable areas earthquake earth, resilience become foundation psychological factors that allow they For still calm and think clear moment happen earthquake, processing experience traumatic in a way Healthy post-disaster, as well as continue life and activities Study normally without burdened by anxiety excessive. However Thus, various study the latest in Indonesia shows that level resilience students in the area vulnerable disaster Still classified as low until moderate, which is reflected from height prevalence anxiety anticipatory, symptoms stress post -traumatic, and disorders adjustments to the population this. Findings this is very worrying Because indicates that part big student Not yet own readiness adequate psychological For face threat earthquake the earth which is part not inseparable from

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reality life they. The low level resilience This at a time confirm urgency development of intervention programs that are specific and structured intended For build capacity resilience students in vulnerable areas earthquake earth, as an integral part of effort subtraction risk disaster based comprehensive school (Rahmawati & Kurniawan, 2024).

School as institutions education own role strategic and responsible fundamental answer in provide supporting services development holistic students, including those in it aspect development psychosocial and mental readiness in face disaster. Guidance and counseling program framework comprehensive in Indonesia places guidance classical as one of the component service mandatory basis held For facilitate optimal development of the whole student without except. Guidance classical is services provided in class format with objective develop competence essential life, including skills management self, regulation emotions, taking decisions and skills social all is component compiler resilience. However unfortunately, the implementation guidance classical in schools in Indonesia at the moment This Still face various limitations serious that hinders its effectiveness in reach goals the method delivery that is still dominated by lectures One direction and use of conventional learning media like board writing and PowerPoint presentations tend to create experience passive and less learning involving student in a way emotional and behavioral. As a result, the materials presented often only reach level knowledge declarative solely without experience internalization the depth required For form change applicable attitudes and skills in situation real, especially when student faced with a situation full emergency pressure like earthquake earth (Pratama & Widiastuti, 2023).

Limitations of guidance media classical conventional become the more real when faced with demands For develop resilience in context specific disaster earthquake earth. One of the fundamental principles in development resilience is the need experience Study experiential where students in a way direct experience, feel, and overcome situation adversity in a safe environment, so that formed belief self that they capable face challenge similar in the future. However, creating experience realistic experiential related earthquake earth in a classroom setting conventional it is obviously very difficult, even impossible, to done without put student in risk real danger. Simulation earthquake earth conventional like exercise evacuation or drop-cover-hold drill, although important, have limitations in matter realism sensory and immersive psychological Because student still aware that they currently is at in situation practice, not the real disaster. The gap between experience exercise with experience real This cause skills that have been studied often No activated in a way automatic moment happen earthquake the real earth, because response automatic is very dependent on the formation footsteps strong memory through realistic and engaging experience emotions. Needs of capable learning media

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bridge gap This become the more urgent, especially remember improvement frequency and intensity earthquake earth in various regions of Indonesia in a number of year last. Without media innovation that is capable provide experience Study safe immersion However realistic, effort build resilience student through guidance classical will Keep going hampered and not reach potential maximum (Wibowo & Anggraini, 2022).

Development rapidly Virtual Reality (VR) technology in One decade final has open revolutionary opportunities for the world of education and services mental health, including service guidance and counseling in schools. VR is technology computer that creates environment three immersive and interactive dimensions, allowing its users For feel presence subjective or sense of presence in a simulated virtual world. The advantages the most relevant VR main with context development resilience disaster is his abilities For create very realistic simulation from situation dangerous like earthquake earth, complete with visual, auditory, and even tactile stimuli haptics in the form of vibration, without put users at risk injury the real physical. In VR environment, students can experience earthquake earth with controlled intensity, feel sensation panic and the disorientation that accompanies it, practicing action protection self, and most importantly, experience success in overcome situation said, which is most potent experience For build efficacy self and resilience. Different with method learning conventional which only depend on imagination and verbal explanation, VR provides experience concrete involving all over senses and emotions, resulting in more learning deeper, more remembered, and more easy transferred to situation real. VR's ability to personalization experience also allows adjustment level difficulties and types scenario in accordance with individual characteristics of students, a invaluable flexibility remember diversity experience and level resilience beginning students in vulnerable areas earthquake earth (Purnomo et al., 2024).

Although VR's potential for build resilience disaster very much big, its integration to in service guidance classical at school need something framework systematic, comprehensive, and foundation - based media development theoretical as well as strong empirical. Media development is not can done in a way haphazard or only depend on sophistication technology only, but must based on understanding deep about characteristics and needs user, purpose learning that is intended achieved, the principles design effective instructional, as well as context implementation in which the media will used. In case this, media developers need to integrate knowledge from various discipline different sciences: understanding about dynamics psychological and needs resilience students in vulnerable areas earthquake earth, domination about principles and methodology guidance effective classical, as well as skill in design immersive and safe VR experience in a way psychological. Complexity and multidimensionality

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from effort development This demand he did studies in -depth and thorough introduction in form study studies library, which aims For explore, map, and synthesize knowledge that has been There is from various source literature scientific research studies library become foundation critical decisive quality and validity from media products that will developed next, because without runway solid conceptual, resulting VR media risky become just a failed technological gimmick reach objective substantive, namely build resilience real students (Kusumo et al., 2023).

Study This in a way special intended For fill in gap existing literature with method integrate three field studies that have been carried out This tend develop in a way separate, namely study about resilience students in vulnerable areas disaster, study about effectiveness guidance classical, and studies about VR applications in intervention psychological and educational. Each field This has have sufficient body of knowledge established, but effort For synthesize all three in something framework conceptually coherent and applicable for development of guidance media classical VR technology is still very limited, especially in Indonesian context. As a result, educators and counselors schools that want utilise VR technology for resilience programs disaster often must Work by trial and error without clear guidance, or adopt commercial VR products that are not designed in a way specific For Indonesian context and culture. Research studies library This expected can produce something synthesis knowledge that will be functioning as a blueprint or print blue conceptual for development of VR media that is not only advanced in a way technologically, but also spiritually pedagogical effective, psychological safe, cultural relevant and practical For implemented in guidance settings classical in schools in vulnerable areas earthquake the earth of Indonesia. With Thus, research This contribute No only on development knowledge knowledge in the field guidance and counseling based technology, but also in direct aiming for solutions practical For increase welfare psychological and mental preparedness of students who live in shadows threat earthquake earth (Setiawan & Nurhadi, 2021).

METHOD

Study This use type study studies library or library research with a purpose For reviewing, analyzing, and synthesizing various literature scientific in a way systematic use build runway solid theoretical and conceptual for development of guidance media classical using Virtual Reality (VR) technology for build resilience students in vulnerable areas earthquake earth. Election type study studies library based on considerations that development of learning media based technology immersive need understanding in -depth multidisciplinary, encompassing

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field psychology resilience, guidance and counseling, technology education, as well as mitigation disaster. Library research allows researchers For explore and integrate knowledge from various discipline knowledge the in a way comprehensive, so that produce framework conceptually rich and based evidence. More continue, remembering VR media development for context specific disasters at school Still relatively new, study library become step essential beginning For mapping the state of the art of field study this, identify gap existing knowledge, and formulate direction development right before enter stage study empirical that requires source Power more large (Jesson et al., 2021).

Data sources in study studies library This consists of from three category main literature relevant scientific with focus study. Category First is books scientific, both large scale international and national, which discusses fundamental theories about resilience psychological, psychology disaster, guidance and counseling comprehensive, Virtual Reality technology in education, design multimedia instructional, and methods study studies library. Books This give runway in -depth and structured theory that becomes foundation for development framework conceptual. Category second is article journal published scientific papers, which include journal international reputable and journal national accredited. Article journal chosen Because serve findings study the latest that has not been covered in book text, so that give description latest about development research in the field resilience students, effectiveness guidance classical, and deep VR applications intervention psychological. Category third is report results research, including theses, dissertations, and reports study from institution relevant research, which provides empirical data and analysis deep about topics specifically studied. Overall this data source chosen through a strict selection process with consider criteria relevance topical, credibility author and publisher, novelty publications, as well as contribution substantial to question proposed research (Zed, 2023).

Data collection techniques in study studies library This implemented through a series systematic and documented steps For ensure traceability and reproducibility of the research process. The first step is identification and determination of keywords relevant searches with four theme main research, namely resilience students in vulnerable areas disaster, need psychological disaster victim students, guidance classical For resilience, and Virtual Reality technology in guidance and counseling. Keywords arranged in Indonesian and English English For expand coverage search, with utilize Boolean operators such as AND, OR, and NOT to narrow down or expand results search in accordance needs. The second step is tracking and collection literature through various scientific databases, both of a general such as Google Scholar, ProQuest, Scopus, and Web of Science, as well as special database such as the Garuda portal,

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Onesearch Indonesia, and repositories university institutions. In addition search online, data collection is also carried out through manual search in the library physique For access books and reports research that is not available in digital format. The third step is recording systematic to every successful literature identified use device soft management reference For make it easier organizing, avoiding duplication, and preparing the citation process. Each identified literature metadata is recorded in a way complete, including information author, year published, title, source publication, abstract, and keywords. The fourth step is filtering literature based on criteria inclusion and exclusion that have been set previously, through the reading process abstract moreover formerly For evaluate relevance (Sugiyono, 2023).

Data analysis techniques used in study studies library This is method analysis content qualitative combined with approach synthesis thematic For produce deep and integrated understanding from various source reviewed literature. The data analysis process was carried out through a number of mutually exclusive stages related and ongoing in a way iterative. Stage First is data reduction, where researchers read in a way deep and repetitive every literature that has been selected For identify and extract information relevant keys with question research. This data reduction process produce units of information in the form of concepts, propositions, findings research, or argument theoretical then encoded based on themes that have been set in framework research, while still open to possibility emergence themes new that is not anticipated previous. Stage second is categorization and codification, where the units of information that have been extracted grouped to in categories more thematic wide based on similarities meaning, pattern, or connection conceptual. Every category defined in a way operational For ensure consistency in the process of codification, and researchers in a way periodically do checking cross For verify accuracy coding. Stage third is synthesis and interpretation, which are the core of the study data analysis process library. Stage fourth is withdrawal conclusion and verification, where researchers formulate findings main from the synthesis process, testing coherence logically with existing data and theories, and do reflection critical to limitations and implications from findings (Flick, 2022).

Testing techniques validity of data in study studies library This adapted from criteria trust or trustworthiness in study qualitative research proposed by Lincoln and Guba, which includes credibility, transferability, dependability, and confirmability. Credibility or internal validity is tested through several strategies. First, triangulation data sources, namely with compare and do verification cross to information obtained from various type data sources, such as books, articles journals and reports research, as well as from various perspective different theoretical. Consistency findings among various sources and perspectives This strengthen credibility

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findings, while inconsistency analyzed more carry on For understand context and reasons behind difference Second, the researcher conduct peer debriefing with discuss the process and findings study with colleague or experts who have expertise in the field related, to get input critical and perspective alternatives that can identify bias or weaknesses that are not realized by the researcher. Third, the researcher apply attitude reflective or reflexivity with in a way conscious and honest confess as well as documenting assumptions, values, and experiences possible personal influence the research process, as well as in a way active make an effort For minimize influence subjectivity (Yusuf, 2025).

As effort For strengthen data validity in general more specific in context studies library, research this also applies rigorous systematic review techniques in the process of collection, selection and evaluation literature that is used data sources. Systematic review is designed approach For minimize bias through implementation explicit, transparent, and reproducible methods in identify, select, assess quality, and synthesize relevant literature with question study certain. The application of systematic review in study This started with formulation question clear and focused research use framework PICo (Population, phenomenon of Interest, Context), which then made into base For compile criteria specific inclusions and exclusions. Each identified literature assessed quality methodology use instrument evaluation critical or appropriate critical appraisal tools with type study from each literature, such as tools from the Joanna Briggs Institute for various design research. Assessment quality This No aim For exclude literature in a way rigid based on score certain, but rather For give context and proportional weight to contribution of each literature in the synthesis process. Literature with quality more methodological tall given more weight big in formation conclusion, while weakness or limitations from literature with better quality low considered in a way be careful (Booth et al., 2021).

RESULTS AND DISCUSSION

Analysis of Resilience Level and Needs Psychological Students in Earthquake- Prone Areas Earth

Vulnerable areas earthquake the earth in Indonesia is area with level vulnerability high geological, placing population student as highly vulnerable groups to impact psychological from disaster nature. The results of the study library show that students living in disaster-prone areas earthquake earth experience condition complex psychology, characterized by with anxiety anticipatory, fear recurring, and disturbances stress significant post -trauma. Studies latest indicates that exposure sustainable to threat earthquake earth create condition uncertainty

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psychological that can bother development cognitive, emotional, and social student in a way comprehensive. Resilience as capacity For rise return from downturn become construct very crucial psychological For developed in context disaster this, considering students who have level resilience tall show ability more adaptation Good in face situation crisis and uncertainty caused by disasters nature (Widyastuti, 2022).

Need psychological students in vulnerable areas earthquake earth covers very broad and interconnected dimensions related One each other. Based on synthesis various literature, found that need will feel safe is the most fundamental needs that are often disturbed consequence threat earthquake continuous earth. Students need guarantee safety Good in a way physique and psychological, which can facilitated through provision information accurate disaster, training adequate preparedness, as well support sustainable psychosocial needs. next is need will regulations emotions, where students need equipped with skills For manage anxiety, fear, and panic that arise moment happen earthquake earth and moment anticipate possibility occurrence earthquake. Regulation good emotions allows student For still calm and think clear in situation emergency, so that can take the right decision For save self (Hidayati & Nurmala, 2023).

Need psychological the third identified is need will efficacy self in face disaster. Students need own belief that they capable face and survive in situation earthquake earth, which only can formed through experience structured and repetitive learning. Efficacy high self contribute to the improvement mental and behavioral preparedness adaptive moment face disaster. Needs fourth related with support social, where students need network strong support from Friend peers, teachers, and family For can maintain condition psychological health. Support social functioning as factor very important protective in moderate impact negative from stress consequence disaster. Students who have support adequate social tend show level greater resilience tall compared to with those who are less get support social. Needs fifth is need will meaning positive to experience disaster, which allows student For see adversity as chance For grow and develop (Rahmawati, 2024).

Dynamics psychological students in vulnerable areas earthquake earth show that resilience is not static characteristics, but rather a dynamic process that can developed through appropriate intervention. Study results literature disclose that resilience consists of from a number of interconnected components related, namely regulations emotions, control impulse, optimism, analysis causal, empathy, efficacy self and achievement positive. Components This form something a system that allows individual For functioning in a way adaptive although is at in a full situation pressure. Development resilience in students need a comprehensive and

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integrated approach, which does not only focus on aspects cognitive but also involves aspect affective and behavioral simultaneous. Interventions that only target One aspect just proven not enough effective in build strong and sustainable resilience (Kusumawardhani, 2022).

Context socio-cultural Indonesia provides color alone in understand resilience students in vulnerable areas earthquake earth. Values wisdom local such as mutual cooperation, sincerity, and surrender to Almighty God One become source strength significant psychological for Indonesian society in face disaster. Students who grow in culture collectivistic tend utilise source Power communal as a coping strategy in face stress consequence disaster. This is show that development resilience in Indonesian students is necessary consider context culture local and integrate values wisdom local to in intervention programs. An approach that ignores context culture potential not enough effective Because No in accordance with framework thinking and systems values held by students and communities in disaster - prone areas earthquake earth (Santoso et al., 2023).

Assessment level resilience in students in vulnerable areas earthquake earth need valid and reliable instruments as well as sensitive to context disasters. Various scale resilience has developed and adapted For measure construct resilience in the population teenagers, but part big instrument the developed in context Western culture that may No fully in accordance For applied to Indonesian students. Therefore that, is necessary adaptation and validation instrument resilience that takes into account characteristics unique Indonesian students living in disaster-prone areas earthquake earth. Instrument accurate assessment become prerequisite important For identify level resilience student as base planning appropriate intervention target. Without accurate assessment, intervention provided risky No in accordance with need current students, so that its effectiveness become suboptimal (Prasetyo & Utami, 2024).

Need psychological students who are urge is need will simulation and training face earthquake realistic earth However safe in a way psychological. Students need experience learning that is possible they For practice skills face earthquake earth in controlled environment, so that they can develop automaticity adaptive response. Experience direct kind of This difficult realized in situation real Because risk the dangers posed, so capable learning media is needed simulate situation earthquake earth with level high realism without sacrifice safety students. Needs This the more urge remember frequency earthquake the earth in Indonesia tends to increase in a number of year lastly, which has an impact on increasing anxiety and uncertainty psychological problems experienced by students (Nugroho, 2022).

From the perspective development, students be at the stage critical developments in which they currently form identity yourself and develop skills essential life. Exposure to threat

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earthquake the continuous earth can bother achievement tasks development this, so that required interventions that are not only focus on aspects preparedness disaster but also on development competence more psychosocial extensive. Developed resilience through appropriate intervention No only beneficial in context disaster but also in face various challenge life others. This is make development resilience as investment term long for mental health and well-being psychological students. Approach developments that focus on strengthening assets and competencies student proven more effective compared to deficit and pathology - focused approach solely (Wardhani et al., 2023).

Effectiveness Study Guidance Classical as a Preventive Strategy in Build Resilience Student

Guidance classical is one of the fundamental components in guidance and counseling programs implemented comprehensively in class format with objective For facilitate optimal development of the whole students. Study results library disclose that guidance classical own position strategic as service preventive and developmental outreach all over population student in a way efficient. In context build resilience students in vulnerable areas earthquake earth, guidance classical offer framework systematic and structured work For develop competence psychosocial needs in face disaster. Systematic means think about all component with consider the role of each component and how interact One each other so that set goals can achieved completely (Azmi et al., 2022). Superiority guidance classical lies in its capacity For create experience Study collective that allows student For each other learn, share experience, and develop support social which is component important from resilience. Class format enable guidance and counseling teachers For reach a number of big student in One time, so it is very efficient from aspect source power and time (Sukmawati, 2022).

Effectiveness guidance classical in build resilience student has supported by various research that shows that intervention based structured classes can in a way significant increase components resilience like regulations emotions, solving problems, and skills social. Guidance classically designed with notice principles learning active, where students involved in a way direct in the learning process through discussion, simulation, and reflection, showing more results Good compared to with approach lectures of a nature passive. Involvement active student in the guidance process classical allows occurrence internalization more values and skills deep, so that more Possible For transferred to in situation life real. The principle of learning by doing becomes very relevant in context this, because resilience No can taught in a way abstract but must experienced and practiced in a way directly (Wibowo & Anggraini, 2023).

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Component curriculum guidance classical For build resilience students in vulnerable areas earthquake earth need covers multiple domains that are interconnected related. First domain is development understanding about disaster earthquake earth, which includes knowledge about causes, characteristics, and impacts earthquake earth. Accurate understanding about earthquake earth can reduce afraid irrational and increasing students' mental readiness in face possibility occurrence earthquake. Second domain is development skills preparedness, which includes procedure evacuation, assistance first, and technique endure life in situation emergency. Skills This provide a sense of control and efficacy self that contributes to improvement resilience. Third domain is development skills regulations emotions, which include technique relaxation, management stress, and coping strategies adaptive For face anxiety and fear related earthquake Earth. The fourth domain is development support social and interpersonal skills, which enable student For build and utilize network support in face disaster (Lestari, 2024).

Methodology guidance effective classical For build resilience emphasizes the use of combining multi-modal approaches various learning strategies. Approach experiential that provides experience direct to student through simulation, games roles, and studies case proven to be very effective in develop resilience. Experience direct kind of This create footsteps strong memory and facilitates formation scheme adaptive cognitive in face situation disaster. Besides that, approach narrative involving use story, film, or testimoni from survivors disasters are also effective in build resilience through the process of identification and learning vicar. Student can Study from other people's experiences without must experience Alone situation traumatic the combination various approach This create experience rich and multi- dimensional learning that supports development resilience in a way holistic (Kartikasari, 2023).

Guidance and counseling teachers as facilitator guidance classical become factor the key to success effectiveness services. Guidance and counseling teachers need own adequate competence in design, implement, and evaluate guidance classical that focuses on development resilience. Competence the covers deep understanding about draft resilience and dynamics psychological students in vulnerable areas earthquake earth, skills in use various guidance methods and media, as well as ability For create climate a safe and supportive classroom. Guidance and counseling teachers also need own resilience good person, because they functioning as a role model for student in face adversity. Development professional sustainable for guidance and counseling teachers become urgent needs For ensure quality service guidance optimal classical (Kusumawati & Hartono, 2024).

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Evaluation effectiveness guidance classical in build resilience student need approach comprehensive and ongoing assessment. Evaluation No only focused on results end in the form of improvement score resilience, but also on the broader processes and impacts wide from intervention. Assessment formative activities carried out during the guidance process classical enable guidance and counseling teachers For do adjustments and improvements in real-time based on response and needs students. Meanwhile that, assessment summative conducted at the end of the program provides information about effectiveness overall intervention and achievement goals that have been set. Use of mixed methods in evaluation, which combines approach quantitative through scale psychological and approach qualitative through interviews and observations, providing richer and deeper understanding about impact guidance classical to resilience students. Evaluation data this is very valuable For development and improvement of guidance programs classical in the future (Rahayu, 2022).

Challenge in implementation guidance classical For build resilience students in vulnerable areas earthquake earth need identified and anticipated For ensure effectiveness service. Limitations allocated time For guidance classical in curriculum school often become constraint main, so that strategy is needed to integrate content resilience to in various eye lesson in a way cross curriculum. In addition that, variation characteristics student in One classes that include difference experience with disaster, level resilience beginning, and style Study need differentiation in approach guidance. Guidance and counseling teacher need capable accommodate diversity This without sacrifice coherence and effectiveness service. Challenges other is resistance or possible anxiety appears in students who have experience traumatic with earthquake earth when topic This discussed in guidance classical. Sensitivity and skills of guidance and counseling teachers in facilitate discussion about sensitive topic become very important For prevent retraumatization and ensuring that guidance classical become a safe and supportive experience for all students (Saputra, 2023).

Potential and Variety Application Virtual Reality (VR) technology in Service Guidance and counseling

Virtual Reality (VR) technology has experience very rapid development in a number of year last and start applied in a way wide in various fields, including education and services mental health. VR is enabling technology users For interact with environment three computer - simulated dimensions, creating experience immersive that resembles reality indeed. In context service guidance and counseling, VR offers extraordinary potential normal as a therapeutic and educational medium that can create experience safe, controlled, and highly personalized

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learning. VR 's ability to present difficult situation or dangerous For replicated in the real world making it very relevant For build resilience students in vulnerable areas earthquake earth, where the simulation earthquake realistic earth can done without risk injury or excessive trauma. Technology This open opportunity new in service previous guidance and counseling No Possible done with method conventional (Susanto, 2022).

Principle underlying basis effectiveness of VR in intervention psychological is the concept of presence, namely feeling present in a way subjective in virtual environment though in a way physique be in place others. High presence allows users For respond in a way psychological and physiological to virtual stimuli as they respond to real stimuli, so that learning and change behavior that occurs in virtual environment can transferred to situation life real. In context build resilience to earthquake earth, presence allows student For experience simulation very realistic earthquakes, including sensation vibrations, sounds, and accompanying visuals, so they can develop response adaptive that will activated in a way automatic moment face earthquake the real earth. The level of presence is influenced by the quality technical VR devices such as resolution screen, field view, latency, and audio quality, as well as by characteristics virtual content such as realism graphics, interactivity, and coherence virtual environment (Hermawan & Putri, 2023).

VR applications in service guidance and counseling can categorized to in several areas based on objective intervention. The first area is therapy exposure therapy that has been proven to be very effective in handle various disturbance anxiety, including phobias and disorders stress post -traumatic. In context resilience to earthquake earth, VR can used For do exposure gradually to related stimuli earthquake earth in a safe and controlled environment, allowing student For experience habituation and learning that they capable face situation the without consequence negative. Second area is training skills training where VR is used For teach and practice skills specific in environment realistic simulation. Students can practice procedure evacuation earthquake, engineering protection self, and coping strategies in various scenario different earthquakes. Repetition exercise in VR allows formation automaticity very important response in situation emergency where time For very limited thinking (Gunawan, 2024).

Application areas third is development empathy and perspective -taking, where VR is used For allows student experience situation from corner view of others. Students can experience How it feels like become survivors earthquake earth, understanding challenges and needs they, as well as develop empathy and motivation For each other help in situation disaster. The fourth area is relaxation and management stress, where VR is used For create a calming and facilitating virtual environment practice technique relaxation like breathing deep, meditation,

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and visualization positive. Immersive and free VR environment from distraction external is very conducive For reach condition deep relaxation, which is skills important in manage anxiety related earthquake Earth. The fifth area is psychoeducation interactive, where VR is used For convey information about earthquake earth, preparedness disasters and resilience in an attractive and easy format understood. The information conveyed through interactive VR experience more Possible For remembered and internalized compared to with delivery information in a way passive through lecture or reading (Pratama & Widodo, 2023).

Variety available VR technology moment This offer various level immersiveness and interactivity that can customized with needs and resources available power. VR based desktop computer with monitor screen offers level lowest immersiveness but the easiest accessible Because only need computer standard. VR based mobile device with a smartphone and a simple headset like Google Cardboard offers level immersiveness currently with relative costs affordable, so it has great potential For implemented in a way widespread in schools. VR based on dedicated headsets such as the Oculus Quest, HTC Vive, or PlayStation VR offers level immersiveness highest with superior visual and audio quality as well tracking precise movements, allowing very natural interaction with virtual environment. Selection type of VR needed consider balance between quality desired experience with availability budget, convenience usage, and scalability implementation in the environment school (Purnomo, 2022).

VR integration into in service guidance and counseling need careful and considered planning various aspect ethical, practical, and technical aspects. ethical covers issues such as informed consent from students and parents, protection privacy and data, as well as prevention potential effect side such as cybersickness which can cause nausea, dizziness, and discomfort physical. Protocol the use of VR is necessary developed For ensure safe and comfortable experience for all students, including restrictions duration use, provision pause rest, and procedures handling If happen effect side. Aspect practical covers availability device hardware and devices software, training for guidance and counseling teachers For use VR technology in effective, and VR integration into in curriculum guidance classical which has there is. Aspect technical covers development appropriate VR content with objective guidance, maintenance devices, and support sustainable technical. All aspect This need considered in a way comprehensive For ensure successful and sustainable VR implementation in service guidance and counseling (Wijaya et al., 2023).

Supporting evidence base effectiveness of VR in intervention psychological has growing very rapidly, even though part big study Still population - focused clinical with disturbance anxiety and stress post -trauma. VR applications for non- clinical population in context

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prevention and development resilience Still relatively limited However show promising results. Studies beginning show that simulation disaster VR based can increase knowledge preparedness, efficacy self, and response adaptive to participants without cause excessive distress. However however, still required more Lots study with rigorous design for confirm effectiveness of VR in build resilience in students in vulnerable areas earthquake earth and for identify the most contributing VR components to positive results. Development protocol intervention standardized and VR - based proof become an important research agenda For advance application technology This in service guidance and counseling (Santosa & Ramadhani, 2024).

Synthesis Framework Conceptual Development of Guidance Media Classical VR technology for Resilience Student

Development of guidance media classical using Virtual Reality (VR) technology for build resilience students in vulnerable areas earthquake earth need framework comprehensive and integrated conceptual synthesis. from three sub- themes previously produce a conceptual model that integrates understanding about resilience and needs psychological students, principles guidance effective classical, as well as potential and applications VR technology. Framework conceptual This built on foundation strong theoretical foundation that combines theory resilience, theory Study experiential, and theory presence in virtual environment. The third integration perspective theoretical This produce unique and innovative approach in development of guidance media classical, which is not only utilise VR technology as tool help teach only, but as environment Study immersive that allows occurrence experience transformative for students (Utami, 2023).

Theory underlying resilience framework conceptual This emphasize that resilience is results from interaction dynamic between factor risks and factors protective in various level ecology. Guidance media classical VR technology designed For strengthen factor protective at the level individual student through development skills regulations emotion, efficacy self, and solving problems, as well as at the interpersonal level through strengthening support social and connection with Friend peers and teachers. Simulation earthquake earth in VR provides chance for student For facing adversity in a safe and controlled environment, which is optimal conditions for development resilience. Experience succeed face situation earthquake in VR, though only simulation, can increase belief student that they capable face earthquake the real earth, which is the core of efficacy self as component resilience. In terms of gradually, through a series structured VR experience, students build scheme cognitive and repertoire adaptive behavior that strengthens resilience they in a way overall (Nugraheni & Kurniawan, 2022).

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Theory Study experiential from Kolb gives framework pedagogical For design experience Study in VR media. Cycle Study experiential consisting of from concrete experience, reflective observation, abstract conceptualization, and active experimentation are very suitable with VR characteristics that enable occurrence experience immersive concrete. In context guidance classical For resilience earthquake earth, students first of all experience simulation earthquake in VR as a concrete experience, then reflect experience and discuss it with Friend peers and teachers as reflective observation. Next, students develop understanding conceptual about earthquake earth, resilience, and coping strategies as abstract conceptualization, which is then tested and implemented in next VR scenario or in exercise real -world preparedness as active experimentation. Cycle This repetitive in every session guidance classical with level increasing complexity and challenges in a way progressive, creating a learning spiral that supports development sustainable resilience (Permata, 2024).

Theory presence or presence in virtual environment provides guide For optimize quality VR experience so that reach impact desired psychological state. High presence achieved through combination from characteristics immersive VR technology and characteristics coherent and interactive virtual content. In development of guidance media classical VR technology, attention special need given to visual and audio quality for create realistic and convincing virtual environments, including environmental details school, vibration and sound earthquake, and reaction other virtual characters. Interactivity is also a component key, where students must can interact with virtual environment naturally, for example with do movement take shelter under table, crawling going to point evacuation, or give help to other characters are injured. Interactivity kind of This increasing the sense of agency and control which contributes to the improvement efficacy self and resilience. In addition that, narrative and scenario in VR it is necessary designed in a way careful For create challenging experience However not overwhelming, which encourages student For go out from the comfort zone they However still in limit tolerance psychological safety (Wahyudi & Sari, 2023).

Framework conceptual it also integrates principles design effective instructional for digital learning media. Mayer 's multimedia learning principles, such as principle coherence, signaling, redundancy, and personalization, are applied in design VR content for optimize processing cognitive students and prevent burden cognitive overload. Information important served in a way clear with appropriate visual and auditory emphasis, elements that are not relevant eliminated For guard focus and narrative delivered with style warm and personal conversation for increase involvement students. Besides that, the principles gamification like system points, levels, challenges, and feeds come back direct integrated to in VR media design

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for increase motivation intrinsic and engagement sustainable students. Gamification No only make experience Study more fun, but also provides clear structure and goals that drive student For Keep going develop skills resilience they through a series increasing challenges complex (Handayani, 2022).

Integration of VR media into in guidance format classical need design that takes into account dynamics groups and interactions social as component important from experience learning. Although VR is often associated with individual experience, in context guidance classic, VR experience is necessary designed For facilitate interaction social and learning collaborative. This is can achieved through various strategies, such as multi- user VR use where several student can interact in the same virtual environment, or through discussion groups and reflection together after individual VR sessions. Activities pre -VR and post -VR are the same importance with the VR experience alone, where the activities pre -VR works For prepare student in a way cognitive and emotional, while activity post -VR works For processing experience, consolidating learning, and transferring skills to context life real. With Thus, the guidance media classical VR technology, right? just device VR software, but rather something package comprehensive interventions that include guide for guidance and counseling teachers, material discussion, sheet Work students, and instruments evaluation of all integrated in a way coherent (Yulianti et al., 2023).

Implementation of guidance media classical VR technology in schools in vulnerable areas earthquake earth need consider context local and wisdom culture local. VR content needs to be customized with characteristics environment physical and social local, such as design building school, procedures applicable evacuation and system support available communities. In addition that, narrative and scenario in VR it is necessary integrate values wisdom relevant local with resilience, such as spirit of mutual cooperation, attitude sincerity and trust to Almighty God One. Adaptation cultural This important For increase relevance and acceptability of VR media for students and community school, and For ensure that skills developed resilience in accordance with context sociocultural where students life. Approach participatory in VR media development, involving teachers, students, figures community and experts culture local, can ensure that the media produced truly responsive to needs and characteristics unique from each community in the disaster-prone areas earthquake earth (Kusumo, 2024).

CONCLUSION

Students in vulnerable areas earthquake earth own need complex and pressing psychological problems, especially need will feel safe, regulation emotion, efficacy self, support

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social, and meaning positive, so that resilience become construct crucial thing that must be done developed through intervention structured. Guidance classical proven is an effective and efficient preventive strategy Because reach all over student in a supportive class format learning collective, but its effectiveness is highly dependent on the use method experiential and competency facilitator. Virtual Reality technology has potential outside normal in service guidance and counseling through his abilities present simulation earthquake an immersive and safe earth, allowing student train response adaptive without risk danger real. Synthesis from third findings the produce framework conceptual integrated media development theory resilience, learning experiential, and presence in VR, designed in a way contextual with notice wisdom local as well as supported by design instructional, gamification, and activities comprehensive reflective.

Implementation results study This realized in form development guidance media prototype classical VR technology that contains scenario simulation earthquake earth tiered, starting from intensity low until high, which is equipped guide facilitation for BK teachers, sheets reflection students, as well as instrument assessment resilience that has been validated in accordance context disaster. This media integrated to in the guidance program regular classical in schools in vulnerable areas earthquake with approach participatory involving community local, preceded training intensive for guidance and counseling teachers, and implemented in a way gradually with evaluation formative sustainable For ensure security psychological, effectiveness learning, as well as program sustainability in build resilience student in a way holistic and contextual.

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