



Evaluating of E- Learning Programs using Gray-related analysis (GRA) method

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Abstract. A method of learning Based on formalized teaching but electronic it is called e-learning with the help of resources. Teaching can take place inside and outside classrooms however, the use of computers and the Internet is an important part of e-learning. It encourages active and independent learning; anywhere anytime to provide courses as resources are available efficient way; Group discussions and private chats Students can interact with their peers around the world through; unlimited access to reading material. E-learning programs in GRA (Gray-related analysis) method Alternative: Factor analysis, Fuzzy integral, Transferring Time, Self-Efficacy. Evaluation Preference: Personal characteristics and computer instruction, e- Learning Environment, Participant Motivation, Web Page Linkage, Range of instructional materials. Shows that from the result it is seen that Range of Instruction Materials and is got the first rank whereas is the Participant Motivation got is having the lowest rank. The value of the dataset for Range of Instruction Materials in GRA (Gray-related analysis) method shows that it results in Camera (A5) and top ranking.

1. Introduction

E-learning is a revolution in technology. As a species we are the younger generation Workers and students have knowledge, skills and Providing values 's part of the redefinition of what we traffic. This book is about e-learning and how its functions will continue to evolve makes some predictions. E-learning involves assessment just like a regular classroom setting. However, to monitor you during the exam No teachers or mentors. It's easy to share answers knowing that no students are looking online. 4. Self motivation and proper time management skills are required. Gray correlation analysis (GRA) Developed by Hiding Deng of Hua Hong University of Science and Technology. This is the most widespread form of gray system theory one of the models used. GRA uses specific information. Without any information Defines situations as black and those with correct information as white. The basic principle of the GRA method is that the chosen alternative is positive- The best solution is "the largest degree of gray relation" and the negative-best solution is to have a "small degree of gray affinity". A gray Corresponding quality derived from gray correlation analysis turn with multiple performance characteristics Used to solve operations. Taguchi method of performance index is gray relative quality Optimum cutting parameters can be determined using Conceptual analysis is the existence of concepts in a text and determines the frequency. Go relational analysis Conceptual Analysis for concepts in a text examines the relationships between creates. Different results for each type of analysis there are, it is for results, interpretations and meanings leads to Alternative: Factor analysis, Fuzzy integral, Transferring Time, and Self-Efficacy. Evaluation Preference: Personal characteristics and computer instruction, e- Learning Environment, Participant Motivation, Web Page Linkage, Range of instructional materials. E-learning can be CD-ROM based, network based, intranet based or web based. It is text, video, audio, animation and virtual includes contexts. Great learning that surpasses even the amount of training you experience in a crowded classroom it will be an experience. It is self-paced, hands-on learning. Improve quality Learning and teaching. Students' learning styles or Meet the requirements. Learners in the learning process Improve user accessibility and time flexibility to engage. Online from the collection of teachers questions Create tests and notes Can prepare them anytime online learning platform Or share in class through the app. it is a cost-effective option for both teachers and students Saves travel time and expense for both. Gray Corresponding analysis is gray It also calculates the correlation degree It is also a method of determination degree of influence between the main behavior of the system or the system factors. A measure of correlation between two factors or between two systems is called the degree of gray correlation. Alternative: Factor analysis, Fuzzy integral, Transferring Time, and Self-Efficacy. Evaluation Preference: Personal characteristics and computer instruction, e- Learning Environment, Participant Motivation, Web Page Linkage, Range of instructional materials.

2. E-learning programs

The A novel proposed with the help of factor analysis Hybrid MCDM Model Evaluation Criteria GRA Assisted independent relationships and assessment Scales reflect interdependent relationships. Subjective AHP and fuzzy combinatorial methods for synthesis application according to perceptual environment are used. The empirical test with the proposed model adequacy criteria Develop effective assessment e-learning programs that's what the results show, especially the evaluation when criteria are multiple and intertwined. [1] Demonstrated with two e-learning corporate training programs.

The proposed model considers the ambiguity of subjective perception and performance Evaluates, identifies core criteria for evaluation, Explaining the interrelationships of criteria and e-learning programs It can also be used to identify elements to improve performance. Also, proposed the results show that the performance calculated by the model similar classical induction methods [2]. Significantly improved information technology (IT) skills to accommodate multimedia content Self-learning and traditional instructor-led Use of IT in many activities like teaching encourages. The education and training budgets increasing areas are devoted to e-learning, [3]. Many outcomes such as teaching and learning environment affect the design and the need for development of e-learning programs. Our study is a specific Focused on results, i.e. for maximum learning effectiveness of an e-learning program choosing the appropriate medium to deliver content and the lesson in making that choice and role of participants. This results in e-learning program design and has a significant impact on the cost of development. [4] Currently, the university has five online English learning programs on its homepage and those programs in six years Purchased at short notice. Why so many in university are there English e-learning programs? At the university Procurement policy of English e-learning programs and to further understand the results, the current Applied English Department Director and Language Center Interviews were conducted with the director and their predecessors. Procurement policy of university English e-learning programs [5]. The distance e-learning programs On-site visits with the aim of gaining an understanding of routine operations and operations. Unstructured interviews for free exploration of e-learning technology were used to support, which included the use of e-learning technology. Captures Challenges in interviews are to get participants to describe their experiences, their opinions and they also allow the expression of feelings, and their personal and unobstructed perspective they are encouraged to share the meanings they create based on experiences [7]. As required Learning programs are expanding dramatically. Assessment The quality of e-learning has become a strategic issue for program survival an important one. The tool has five dimensions: assurance, Empathy, responsiveness, reliability and Website content [9]. Students a subject specialist who is accustomed to a traditional teacher-centered approach to teaching and learning Teachers also measure the quality of the learning experience through the information provided. Student's computer and Accountability for students' own learning is a bigger challenge than improving information skills. e- Several recommendations have been made to develop learning programs that are self-directed, lifelong Creating learners across the board that can create in the information economy. [10]. National strategies for e-learning established by Govt and initiatives to ensure development of projects is the point. ICT infrastructure, professional In E-Learning Teaching Methods for Development Developing expertise, among stakeholders Establishing partnerships and collaborations. Another major concern was Quality of e-learning programs offered in the same study. Collaborating with government agencies and educators to ensure the quality of e-learning materials, certifying Identify Promoting awareness of e-learning facilities among programs and learners Among the primary challenges observed [13] are E-learning programs for "anywhere, anytime" learners are convenient and therefore outside of Internet access The study assumes that projects can be taken. The e-learning workplace is one of the determinants of program effectiveness may be the main factor. External Internet, workplace e-learning the study proved the assumption that accessibility is one of the key drivers. [14].

3. Grey Relational Analysis (GRA)

Gray-associated analytical method. Nine check runs have been made based totally on the orthogonal series of the qualifying machine. Surface homes and roundness of approximate average and maximum hardness have been decided on as great targets. The most suitable parameter composition of the turning system changed into received by way of ash-associated analysis. Gray-related analysis is a way of measuring approximate portions in rows the usage Gray relational grade can determine its size impact of each controllable procedure factor on person satisfactory objectives by using analyzing the Gray Relational Grade Matrix. Theories of gray relation analysis have attracted considerable hobby amongst researchers [17] gray relation analysis. Sixteen test runs had been carried out primarily based at the Takuchi approach of the orthogonal series to determine the ideal issue repute. Response to each phase of gadget parameters Table and reaction diagram are gray Received from relevant celebrity. Parameters top-quality thinking about the multi-overall performance traits, the floor hardness of the work piece, the width of the upper curve and the width of the warmth-affected sector. By reading the ash-related great, it may be visible that laser energy has a more impact on responses than speed discount. It has been in reality proven Above the laser slicing system There may be performance characteristics efficaciously stepped forward by this approach.[18] Gray-associated analysis for improving turning functions with more than one performance traits. A grey relative pleasant derived from ash-associated Analysis is used to destroy turn functions with two performance characteristics. Optimal cut The parameters can be determined using the Taguchi approach because the overall efficiency The code is widely used in relation to gray. Tool lifestyles, cut Pressure and ground hardness are essential housings in turning. Using these properties, Cutting parameters including cutting speed, feed rate and depth of cut could be top of the line inside the study. Experimental results have been progressed with the aid of this method. [19] Improved the surface hardness and burr peak drilling manner parameters of the ash-associated analytical paintings location. Various drilling Feed charge, slicing speed, drill and drill bit Parameters such as factor angles have been considered. For an orthogonal collection test design was used. Optimum machining parameters are gray the ash obtained from the related assessment- are determined by the corresponding crate. The multi-overall performance characteristic. [21] the grey touch evaluation proposed via Deng Hauling might be very beneficial for analyzing clinical records. The critical concept of GRA is to locate the gray relative sequence that can be used to explain the connection between associated elements based totally on the information sequence. Two standards are the conventional method of GRA and three requirements are an advanced one. The fundamental steps and formulas of GRA are added and compiled into experimental clinical records, medical trial records, clinical study facts and ambulatory and clinical records.

[22] The diverse strength and emission variables associated with ash and residual fee permit Brand new referred to as ash related quality for the definition of the unmarried variable. Therefore, the assessment and optimization of two complex responses is a as optimization of standardized single variable may be changed. The Conception of Different Forest Residues Experimental evaluation of fuel prices in small particles it has been demonstrated the possibility of combining pine bark with wood particles to reduce. boilers and to preserve overall performance and emissions within common standards [23] Gray-associated analysis approach is a information analysis method primarily based on a common distance characteristic for classifying everyday items and unusual objects. The idea of ways natural items can always be mapped around a reference factor at a couple of dimensional intervals is proposed and explained. Therefore, extraordinary items may be recognized with the aid of estimating the distance between the drawn and the reference point. Two validation examples, one from a popular iris dataset and the other from a practical one A slope figures from the case to illustrate the feasibility and compatibility of the proposed version followed, which cannot contain only unusual objects. Without difficulty prominent, however also position. Assess the severity of the abnormalities. [24] Gray contact evaluation (GRA). Laboratory-level thickening useful parameters, inclusive of feed waft charge, strong percent, flocculent dose, and feed well peak, had been most useful based totally on a number of performance traits. Preferred properties Sixteen experiments were carried out using Alternative: factor analysis, fuzzy integration, timing Change, self-efficacy. Assessment Option: Personal Characteristics and Computer Instruction, E-Learning Environment, Participant motivation, web page link, range of instructional materials. The evaluation of the ash-related exceptional suggests the significance of the parameter and the identity of the most desirable parameter composition for the laboratory-grade thickener.

TABLE 1. E-learning programs in data set

	Factor analysis	Fuzzy integral	Transferring Time	Self-Efficacy
Personal Characteristics and System Instruction	41.08	239.53	39.15	32.05
E-Learning Environment	39.12	242.97	38.69	37.30
Participant Motivation	34.08	222.58	39.18	33.10
Webpage Connection	33.17	228.28	34.60	27.59
Range of Instruction Materials	53.33	276.41	37.96	28.89

This table 1 shows that the value of dataset for E-learning programs in GRA (Gray-related analysis) method Alternative: Factor analysis, Fuzzy integral, Transferring Time, Self-Efficacy. Evaluation Preference: Personal characteristics and computer instruction, e- Learning Environment, Participant Motivation, Web Page Linkage, Range of instructional materials.

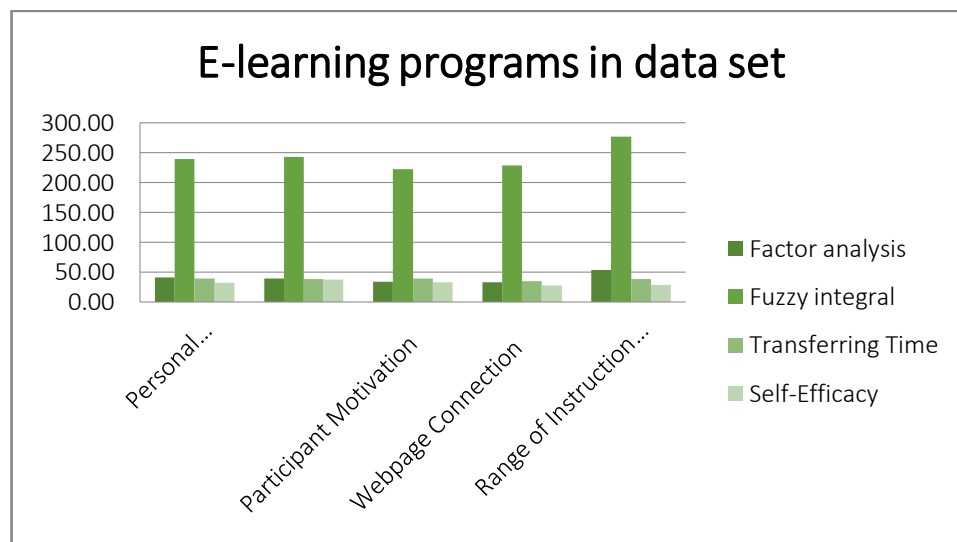


FIGURE 1. E-learning programs in data set

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TABLE 2. E-learning programs in Normalized Data

	Factor analysis	Fuzzy integral	Transferring Time	Self-Efficacy
Personal Characteristics and System Instruction	0.3924	0.31488	0.0066	0.541
E-Learning Environment	0.2951	0.378785	0.107	0
Participant Motivation	0.0451	0	0	0.433
Webpage Connection	0	0.105889	1	1
Range of Instruction Materials	1	1	0.2664	0.866

This table 2 shows that the values of E-learning programs in Normalized Data from using gray relation analysis Find the for Personal characteristics and computer instruction, e- Learning Environment, Participant Motivation, Web Page Linkage, Range of instructional materials.

TABLE 3. E-learning programs in Deviation sequence

	Factor analysis	Fuzzy integral	Transferring Time	Self-Efficacy
Personal Characteristics and System Instruction	0.6076	0.68512	0.9934	0.459
E-Learning Environment	0.7049	0.621215	0.893	1
Participant Motivation	0.9549	1	1	0.567
Webpage Connection	1	0.894111	0	0
Range of Instruction Materials	0	0	0.7336	0.134

This table 4 shows that the values of E-learning programs in Deviation sequence from using gray relation analysis Find the for Personal characteristics and computer instruction, e- Learning Environment, Participant Motivation, Web Page Linkage, Range of instructional materials.

TABLE 4. E-learning programs in Grey relation coefficient

	Factor analysis	Fuzzy integral	Transferring Time	Self-Efficacy
Personal Characteristics and System Instruction	0.45141	0.4219	0.334795	0.5212
E-Learning Environment	0.41499	0.4459	0.358934	0.3333
Participant Motivation	0.34368	0.3333	0.333333	0.4684
Webpage Connection	0.33333	0.3587	1	1
Range of Instruction Materials	1	1	0.40531	0.7888

This table 5 shows that the values of E-learning programs in Grey relation coefficient from using gray relation analysis Find the for Personal characteristics and computer instruction, e- Learning Environment, Participant Motivation, Web Page Linkage, Range of instructional materials..

TABLE 5. E-learning programs in GRA

	GRA
Personal Characteristics and System Instruction	0.432
E-Learning Environment	0.388
Participant Motivation	0.37
Webpage Connection	0.673
Range of Instruction Materials	0.799

This table 5 shows that from the result it is seen that Range of Instruction Materials and is got the first value whereas is the Webpage Connection got is having the lowest value.

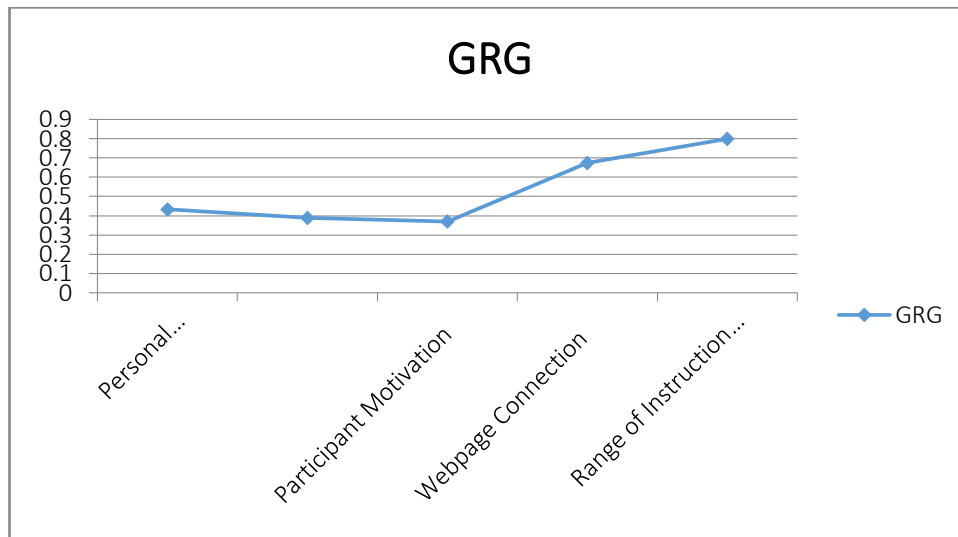


FIGURE 2. E-learning programs in GRA

This figure 2 shows that from the result it is seen that Range of Instruction Materials and is got the first value whereas is the Webpage Connection got is having the lowest value.

TABLE 4. E-learning programs in Rank

	Rank
Personal Characteristics and System Instruction	3
E-Learning Environment	4
Participant Motivation	5
Webpage Connection	2
Range of Instruction Materials	1

This table 5 shows that from the result it is seen that Range of Instruction Materials and is got the first rank whereas is the Participant Motivation got is having the lowest rank.

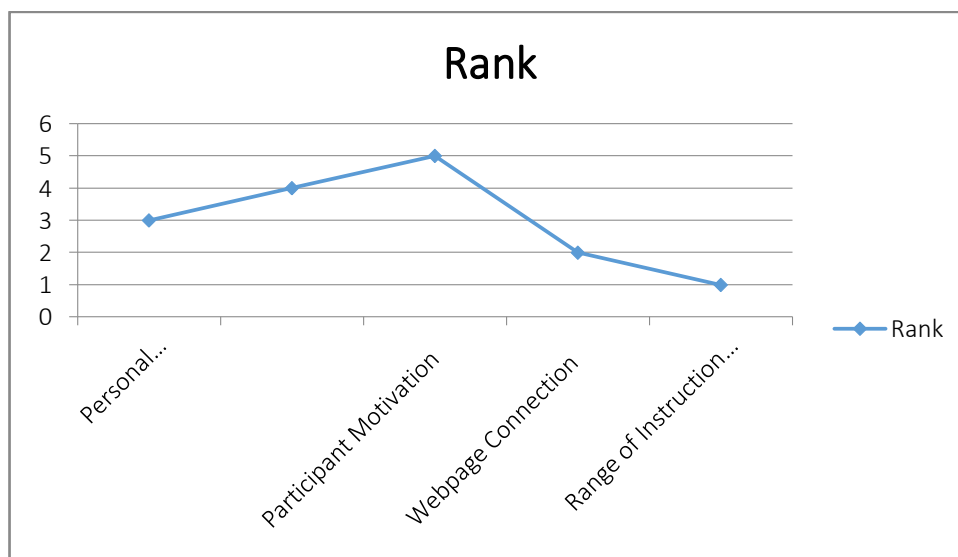


FIGURE 3. E-learning programs in Rank

Figure 3 is analysis the rank of E-learning programs. From the result it is seen that Range of Instruction Materials and is got the first rank whereas is the Participant Motivation got is having the lowest rank. The Webpage Connection is on the 2nd rank, Personal Characteristics and System Instruction is on the 3rd rank, E-Learning Environment is on the 4th rank.

4. Conclusion

Typical functions of distance e-learning programs and to gain an understanding of the operations Purposeful on-site visits. Unstructured Interviews for a free survey of e-learning technology were used to support environment. Interviews participants about their experiences Describe their opinions and feelings Expressive, personal and unobstructed Based on their experiences in perspective Share the meanings they create encourage. Gray relation analysis. Sixteen test runs had been carried out primarily based at the Takuchi approach of the orthogonal series to determine the ideal issue repute. Response to each phase of gadget parameters Table and reaction diagram are gray Received from relevant celebrity. Parameters top-quality thinking about the multi-overall performance traits, the floor hardness of the work piece, the width of the upper curve and the width of the warmth-affected sector. By reading the ash-related great, it may be visible that laser energy has a more impact on responses than speed discount. It has been in reality proven Above the laser slicing system There may be performance characteristics efficaciously stepped forward by this approach from the result it is seen that Range of Instruction Materials and is got the first rank whereas is the Participant Motivation got is having the lowest rank.

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