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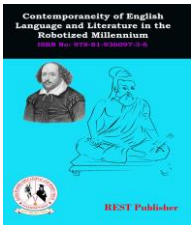

Conceptualizing the Emerging Field of Different Learning Environment Theories Using DEMATEL Method

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Abstract. *The controlling value theory of emotions' applicability to distance learning settings is examined in this discussion. The control value theory served as the theoretical foundation for four of the empirical research in this special issue of Net and Higher Education, and it was implicit in numerous others. As a result, we looked at each essay's emotional expression, emotional antecedents, and educational outcomes in relation to the management science of emotions. The findings of these research generally concur with those of conventional classrooms, indicating that there aren't many emotional distinctions between face-to-face classroom setting and "online learning environments". The fact that control and value judgements consistently serve as antecedents of particular emotions, despite the fact that students' learning settings varied significantly, may be a major factor in the similarities in emotions that have been found. We conclude with suggestions for additional study. In several disciplines, the "Decision-Making Test and Evaluation Laboratory (DEMATEL)" approach is used to pinpoint crucial elements of straightforward systems. Although DEMATEL has undergone significant improvement, they are still best suited for simple systems and are unable to address decision-making issues in complicated systems. The main goal of this paper is to offer a hierarchical DEMATEL approach for complicated systems with many system components, several forms of impacts, and hierarchy. In contrast to horizontal decomposition, which deals with the presence of numerous types of influencing factors, and vertical decomposition, which deals with the presence of several key dimensions and hierarchy, hierarchies' decomposition was initially developed to provide a framework for standardizing the DEMATEL dilemma of complex systems. To create direct operating (IDR) matrices for each element in each subsystem, a direct influence assessment is suggested. A hyper IDR matrix is then specified and created by merging the IDR matrices throughout all pairs all subsystems starting at the lowest level. a high rate of turnover. Online learning, e-learning, distributed learning, e-learning and distributed learning, e-learning & online learning, and any other learning contexts. Different learning environment in Distance learning (A1) is got sixth rank, e-Learning(A2) is got seventh rank, Online learning(A3) is got fifth rank, Distance learning and e-Learning (A4) is got fourth rank, Distance learning and online learning (A5) is got first rank, e-Learning and online learning (A6) is got second rank and All learning environments (A7) is got third rank.*

Keywords: *smart classroom settings, student-centered, open learning environments (SCOLEs), MCDM.*

1. INTRODUCTION

The psychology of teaching, instruction, human contact, cognitive science, postcolonial theory, media research, and entertainment technology are a few of the fields that serve as the basis for the prototype. Professionals working in the learning environment have traditionally been opportunistic, embracing new technology and developing cutting-edge applications are based on what they think would be effective, efficient, and engaging. Unfortunately, there is comparatively little strategic consideration of how to best build and implement education programs on a large and permanent scale, and empirical study in this area has received very little attention. Research and theory have been pushed to the side as a result of support for a specific method or technology and an emphasis for innovation and originality. The purpose of this essay is to lay a basis for designing intelligent learning environments by bringing together recent discoveries in technology, psychology, and cognition. In many circumstances, this fundamental framework can be expanded upon by making use of the desired traits that are unique to representative scenarios. A methodology for assessing intelligent learning environments will also be given. To promote conversation, it is necessary to provide some definitions first. Depending on the learning purpose, target audience, accessibility, and type of content, multiple learning environments are designed. Its "Decision Testing and Evaluation Laboratory (DEMATEL)" method was developed between 1972 and 1976 by

the Humanities and Human Relations Program of the Battelle Memorial Institute, which was located in Geneva. The components and/or elements in a reason chain that go into a difficult decision. Identifying the crucial elements that have the biggest effects on a given system is the fundamental goal of DEMATEL, which is used to tackle the Groups Decision Making (GDM) problem. The DEMATEL approach provides a collection of matrices for pair-wise comparison throughout computational processes, which is quite comparable to the "Analytical Hierarchy Process (AHP)". While the DEMATEL approach estimates the direct influence either between 2 factors from someone with no influence to strong influence, pairwise comparisons in AHP are used to determine the relative significance in between two factors form equal value to very important. One method for integrating individual assessments when a team of specialists participate in the AHP judgement process is to use geometry algorithms. The DEMATEL technique, in contrast, combines the views of a number of individuals using computer formulas. The consistency ratio is another tool that AHP use to evaluate the consistency of judgement' comparisons. The DEMATEL approach does not, however, include a consistency ratio estimation to ensure that comparisons are accurate. In fact, a technique to prevent incorrect comparisons during computing processes is necessary.

2. DIFFERENT LEARNING ENVIRONMENT

The fundamental tenet is that, similar to how there is a common perception of what a smart person is, a sense of what a "modern active learning" is present. Yet, one significant contrast is that settings are made, whereas people either evolve (in terms of knowledge, intellect, and skills) or, in some cases and circumstances, do not. So, the challenge is to provide a strong framework that will guide the development and application of "smart classroom settings". Often times, people who are intrigued by technological advances take what they enjoy and unintentionally learn and use it to create new learning environments, some of which might be marginal or creative. are beneficial, and some of them can be scaled up or copied in different circumstances. In this regard, a framework founded on theory, pre-development work, research, and beliefs can be beneficial. Learning scientists and learning system designers created the "Student-Cantered, Open Learning Environment (SCOLE)" frameworks from scratch. Students are guided and supported as they work through challenging, frequently unstructured, open-ended tasks in student-centered, open learning environments (SCOLEs), which promote student or self-directed learning. The development of unique student perspectives is supported by methodologies that make use of technology tools, resources, and scaffolding. SCOLEs offer settings where the individual chooses the learning objective, the learning strategy, or both. During spontaneously, self-initiated informal learning, a person may set and contains the detailed personal learning goals with little to no external constraints. In contrast, the person can only use specialized Fic, de Fi Ned resources during free time studying in formal settings to pursue unique learning goals. In the majority of formal school settings, learnings are specified externally, and the person selects how they will be achieved. Cognitive demands essentially change from being externally controlled, processed, and imprinted during active instruction to being personally anticipated, searched for, and evaluated for relevance depending on individual wants and goals. Cooperative learning is a second component of constructivist learning. A constructivist theory of learning holds that the learner can create knowledge through interacting with others. Constructivists disagree on the extent to which collaboration aids in knowledge acquisition, but they do agree that social contact and bargaining play a significant role in this process. As a third crucial aspect, the importance of metacognitive knowledge in acquisition has been highlighted. Self-regulated learning, which includes main objective, self-monitoring, self-evaluation, and self-reinforcement, is the most effective way to learn new material. According to research, classroom settings that give students some degree of control over the learning are beneficial. Fourth, most constructivists concur that realistic learning challenges foster meaningful learning. Students learn to think in actual, real-world settings by dealing with events and problems that are similar to the circumstances and difficulties they will encounter in their future employment. Yet, from an SDT perspective, demand-support components are present in both lectures and student-centered learning environments. For instance, in lectures, structure and direction may help students feel confident in their ability to handle the content, whereas in student-centered learning environments, accountability for understanding and small group instruction may promote autonomy or relatedness, respectively. In addition, the SDT viewpoint emphasizes the relevance of the teacher's implementation of the teaching strategy, for instance, whether it is done in a way that promotes autonomy or one that is more controlling. For instance, constructivist learning environments may be ineffective if the instructor does not sufficiently promote the independence of the students' learning. As a result, it's crucial to consider the support the teacher needs to provide in the classroom. Several learning principles are used to define Gee's qualities for learning. Several games' structural components are examined, and it is then discussed how these characteristics apply to instructional approaches. The stated learning theories span a wide range of subjects, including motivation, identity, perception of expertise, and linguistic multimodality. The majority of learning theories rely on creating gaming environments as learning environments. Gee contends that effective learning depends on

good design. In educational institutions, the notion that game design may inform education has gained traction, and some hesitant proposals have already been made to put the notion into reality.

3. MATERIALS AND METHODS

The relationships between the identified elements can be easily mapped into a clear structural equation model of reliability using the DEMATEL methodology, as stated in the literature. You can carry out this approach by grouping the components into cause-and-effect categories. This aspect suggests that DEMATEL is a highly effective and suitable tool for investigating the interdependencies between variables in a complicated system. In this way, the factors that have been identified can be ranked, and the resulting priorities can then be used to make long-term strategic decisions and associated improvement programmers. In other words, DEMATEL can only assess the interconnectedness of cause-and-effect factors and cannot solve any decision-making difficulties. The DEMATEL method's original implementation are provided. The DEMATEL method has been integrated with other analytical or mathematical techniques in the most significant studies in the subject. It is evident from a thorough analysis of the DEMATEL approach and its applications that the original version of DEMATEL still requires and merits future development from a number of angles, particularly the unaddressed flaws of the original state. The authors were inspired by the aforementioned factor to create the DEMATEL approach and get over some of its unadvertised shortcomings. The current study has the following organizational structure. The DEMATEL method's preliminary and primary definitions are presented, along with a broad critique of its lack of novelty. To address the DEMATEL method's unrecognized flaws, an improvement is suggested. To demonstrate the efficacy and effectiveness of the suggested paradigm, a case study was used. DEMATEL has always been incorporated into different multi-criteria decision-making (MCDM) techniques because it can identify interdependent links between elements. ANP makes the assumption that the problematic system is well understood and that its computing process is intricate, both of which make it challenging to actually execute, especially for intricate systems. Determining the weights of clusters, handling internal dependencies, and capturing the network connection map are all done using DEMATEL. Since DEMATEL's capabilities can make up for ANP's weaknesses, their integration is soon employed to address actual management issues. For one organization with a diverse supply chain, Hung created the DEMATEL-ANP fuzzy objectives methodology to schedule production allocation. Using DEMATEL modified ANP, hospital internal supply chain performance is evaluated. The combination of DEMATEL and other MCDM strategies is a third form. In order to analyses the important elements in the original DEMATEL after the hierarchical structure has been formed, it is vital to understand how to generate the IDR matrices. Experts supply the IDR matrix, which rates the direct influence of each pair of factors on such a scale from 0 to 4. by DEMATEL's professionals. Seldom is it thought that indirect influences between variables that do not need to be evaluated in DEMATEL could be the root of subjective cognitive ability violations. So, it is reasonable to draw conclusions about relationships that directly affect hierarchical DEMATEL.

4. RESULT AND DISCUSSION

TABLE 1. Different learning environment using DEMATEL Method

	A1	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**Sum**
A1	40	30	36	55	48	37	44	290
A2	3	21	28	51	55	47	32	237
A3	34	64	39	34	34	43	51	299
A4	25	2	49	53	40	52	34	255
A5	23	54	61	40	65	69	53	365
A6	45	24	34	47	60	56	65	331
A7	38	59	43	54	34	53	66	347

Table 1 shows that DEMATEL Decision making trail and evaluation laboratory in Different learning environment with respect to Distance learning, e-Learning, Online learning, Distance learning and e-Learning, Distance learning and online learning, e-Learning and online learning and All learning environments sum this value.

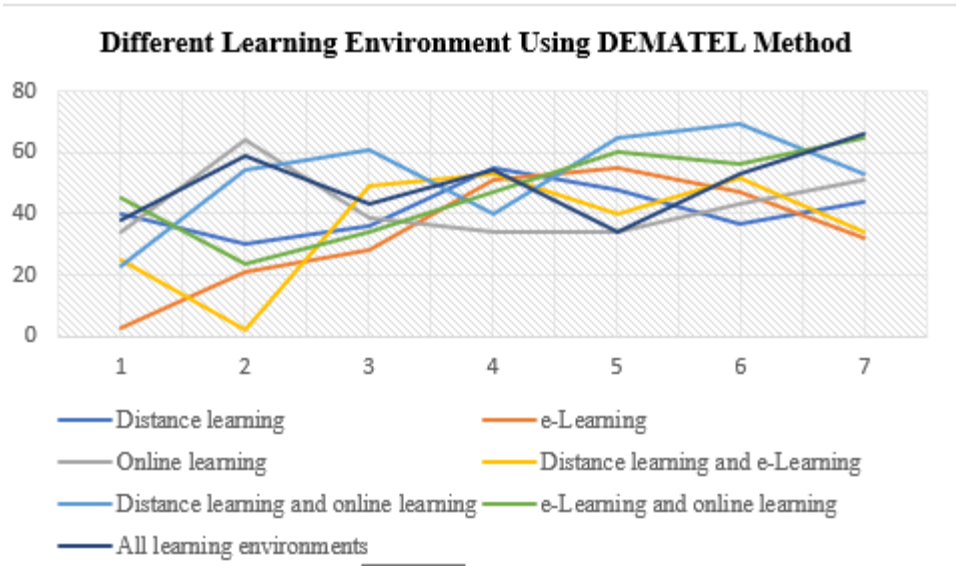

FIGURE 1. Different learning environment

Shows that figure 1 DEMATEL Decision making trail and evaluation laboratory in Different learning environment with respect to Distance learning, e-Learning, Online learning, Distance learning and e-Learning, Distance learning and online learning, e-Learning and online learning and All learning environments sum this value.

TABLE 2. Normalization of Direct Relation Matrix and Calculate the Total Relation Matrix

	A1	A2	A3	A4	A5	A6	A7
A1	0.109589	0.0821918	0.0986301	0.1506849	0.1315068	0.1013699	0.120547945
A2	0.0082192	0.0575342	0.0767123	0.139726	0.1506849	0.1287671	0.087671233
A3	0.0931507	0.1753425	0.1068493	0.0931507	0.0931507	0.1178082	0.139726027
A4	0.0684932	0.0054795	0.1342466	0.1452055	0.109589	0.1424658	0.093150685
A5	0.0630137	0.1479452	0.1671233	0.109589	0.1780822	0.1890411	0.145205479
A6	0.1232877	0.0657534	0.0931507	0.1287671	0.1643836	0.1534247	0.178082192
A7	0.1041096	0.1616438	0.1178082	0.1479452	0.0931507	0.1452055	0.180821918

Table 2 shows that the Normalizing of direct relation matrix and calculate the total relation matrix in with respect to Distance learning, e-Learning, Online learning, Distance learning and e-Learning, Distance learning and online learning, e-Learning and online learning and All learning environments has Different value to Calculate the Value.

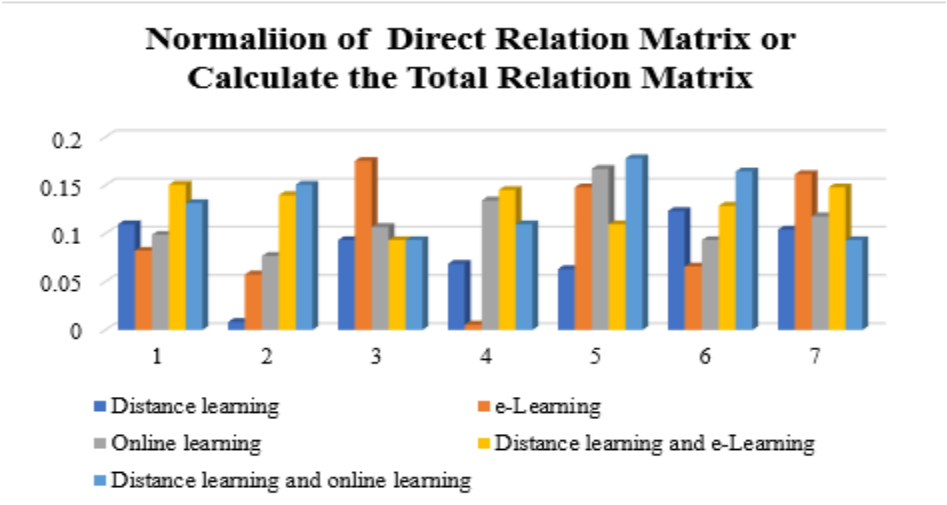

FIGURE 2. Normalizing of direct relation matrix and calculate the total relation matrix

Shows that the figure 2 Normalising of direct relation matrix and calculate the total relation matrix in with respect to Distance learning, e-Learning, Online learning, Distance learning and e-Learning, Distance learning and online learning, e-Learning and online learning and All learning environments has Different value to Calculate the Value.

TABLE 3. I= Identity matrix

1	0	0	0	0	0	0
0	1	0	0	0	0	0
0	0	1	0	0	0	0
0	0	0	1	0	0	0
0	0	0	0	1	0	0
0	0	0	0	0	1	0
0	0	0	0	0	0	1

Table 3 Shows the I= Identity matrix in Different learning environment with respect to Distance learning, e-Learning, Online learning, Distance learning and e-Learning, Distance learning and online learning, e-Learning and online learning and All learning environments is the common Value.

TABLE 4. Y Value

0.109589	0.0821918	0.0986301	0.1506849	0.1315068	0.1013699	0.1205479
0.0082192	0.0575342	0.0767123	0.139726	0.1506849	0.1287671	0.0876712
0.0931507	0.1753425	0.1068493	0.0931507	0.0931507	0.1178082	0.139726
0.0684932	0.0054795	0.1342466	0.1452055	0.109589	0.1424658	0.0931507
0.0630137	0.1479452	0.1671233	0.109589	0.1780822	0.1890411	0.1452055
0.1232877	0.0657534	0.0931507	0.1287671	0.1643836	0.1534247	0.1780822
0.1041096	0.1616438	0.1178082	0.1479452	0.0931507	0.1452055	0.1808219

Table 4 Shows the Y Value in E Different learning environment with respect to Distance learning, e-Learning, Online learning, Distance learning and e-Learning, Distance learning and online learning, e-Learning and online learning and All learning environments is the Calculate the total relation matrix Value and Y Value is the different value.

TABLE 5. I-Y Value

0.890411	-0.0821918	-0.0986301	-0.1506849	-0.1315068	-0.1013699	-0.1205479
-0.0082192	0.9424658	-0.0767123	-0.139726	-0.1506849	-0.1287671	-0.0876712
-0.0931507	-0.1753425	0.8931507	-0.0931507	-0.0931507	-0.1178082	-0.139726
-0.0684932	-0.0054795	-0.1342466	0.8547945	-0.109589	-0.1424658	-0.0931507
-0.0630137	-0.1479452	-0.1671233	-0.109589	0.8219178	-0.1890411	-0.1452055
-0.1232877	-0.0657534	-0.0931507	-0.1287671	-0.1643836	0.8465753	-0.1780822
-0.1041096	-0.1616438	-0.1178082	-0.1479452	-0.0931507	-0.1452055	0.8191781

Table 5 Shows the I-Y Value Different learning environment with respect to Distance learning, e-Learning, Online learning, Distance learning and e-Learning, Distance learning and online learning, e-Learning and online learning and All learning environments table 4 T= Y(I-Y)-1, I= Identity matrix and table 4 Y Value Subtraction Value.

TABLE 6. (I-Y)-1Value

1.525628775	0.5848075	0.679992	0.8038383	0.7911471	0.8175487	0.8124517
0.354731782	1.4775207	0.5651018	0.6820913	0.7049351	0.7327148	0.6685223
0.510881147	0.6868577	1.6909983	0.7574523	0.7644651	0.8435834	0.8421474
0.447463177	0.4583163	0.6553652	1.7268529	0.6982369	0.7840358	0.7172575
0.590445933	0.7963744	0.9038781	0.9367255	2.0220704	1.103647	1.03116
0.613624016	0.6586104	0.7722839	0.8919199	0.9362663	1.9918218	0.9929006
0.594084294	0.7547273	0.7991513	0.9221745	0.8715855	0.9899652	1.9998107

Table 6 Shows the (I-Y)-1Value Different learning environment with respect to Distance learning, e-Learning, Online learning, Distance learning and e-Learning, Distance learning and online learning, e-Learning and online learning and All learning environments Table 5 shown the Miner's Value.

TABLE 7. Total Relation matrix (T)

	Total Relation matrix (T)						
A1	0.525628775	0.5848075	0.679992	0.8038383	0.7911471	0.8175487	0.8124517
A2	0.354731782	0.4775207	0.5651018	0.6820913	0.7049351	0.7327148	0.6685223
A3	0.510881147	0.6868577	0.6909983	0.7574523	0.7644651	0.8435834	0.8421474
A4	0.447463177	0.4583163	0.6553652	0.7268529	0.6982369	0.7840358	0.7172575
A5	0.590445933	0.7963744	0.9038781	0.9367255	1.0220704	1.103647	1.03116
A6	0.613624016	0.6586104	0.7722839	0.8919199	0.9362663	0.9918218	0.9929006
A7	0.594084294	0.7547273	0.7991513	0.9221745	0.8715855	0.9899652	0.9998107

Table 7 shows the Total Relation Matrix the direct relation matrix is multiplied with the inverse of the value that the direct relation matrix is subtracted from the identity matrix.

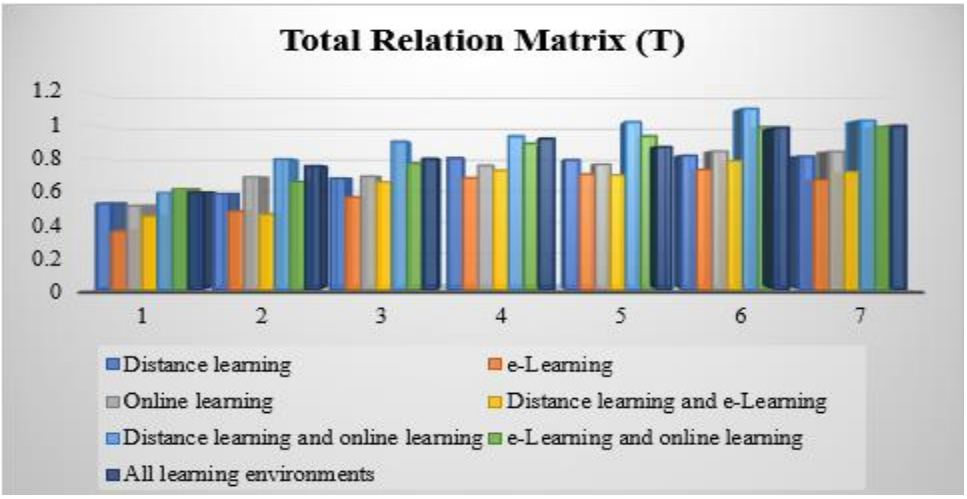

FIGURE 3. Total Relation Matrix

Shows the figure 3. Total Relation Matrix the direct relation matrix is multiplied with the inverse of the value that the direct relation matrix is subtracted from the identity matrix

TABLE 9. Different learning environment Ri, Ci Value

	Ri	**Ci**
A1	5.0154142	3.6368591
A2	4.1856178	4.4172143
A3	5.0963853	5.0667706
A4	4.4875278	5.7210546
A5	6.3843013	5.7887064
A6	5.8574268	6.2633166
A7	5.9314987	6.0642503

Table 9 shows the Different learning environment Ri, Ci Value Distance learning, e-Learning, Online learning, Distance learning and e-Learning, Distance learning and online learning, e-Learning and online learning and All learning environments in Distance learning and online learning is showing the Highest Value for Ri and e-Learning is showing the lowest value. e-Learning and online learning is showing the Highest Value for Ci and Distance learning is showing the lowest value.

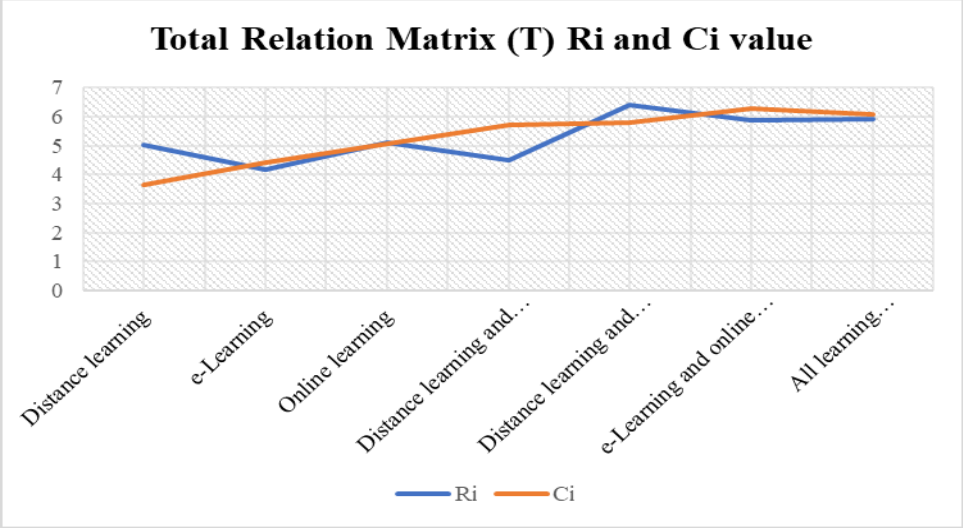

FIGURE 4. Total Relation Matrix (T) Ri and Ci value

Figure 5 shows the Total Relation Matrix (T) Different learning environment Ri, Ci Value Distance learning, e-Learning, Online learning, Distance learning and e-Learning, Distance learning and online learning, e-Learning and online learning and All learning environments in Distance learning and online learning is showing the Highest Value for Ri and e-Learning is showing the lowest value. e-Learning and online learning is showing the Highest Value for Ci and Distance learning is showing the lowest value.

TABLE 10. Calculation of Ri+Ci and Ri-Ci to Get the Cause and Effect

	Ri+Ci	Ri-Ci	Identity	Rank
A1	8.6522734	1.3785551	cause	6
A2	8.6028321	-0.2315964	effect	7
A3	10.163156	0.0296147	cause	5
A4	10.208582	-1.2335268	effect	4
A5	12.173008	0.5955949	cause	1
A6	12.120743	-0.4058899	effect	2
A7	11.995749	-0.1327515	effect	3

Table 10 shows the Calculation of Ri+Ci and Ri-Ci to Get the Cause and Effect. Distance learning, e-Learning, Online learning, Distance learning and e-Learning, Distance learning and online learning, e-Learning and online learning and All learning environments of Distance learning, Online learning and Distance learning and online learning is Showing the highest Value of cause. e-Learning, Distance learning and e-Learning, e-Learning and online learning and All learning environments is showing the lowest Value of effect.

TABLE 11. T Matrix Value

0.5256288	0.5848075	**0.679992**	**0.8038383**	**0.7911471**	**0.8175487**	**0.8124517**
0.3547318	0.4775207	0.5651018	**0.6820913**	**0.7049351**	**0.7327148**	**0.6685223**
0.5108811	**0.6868577**	**0.6909983**	**0.7574523**	**0.7644651**	**0.8435834**	**0.8421474**
0.4474632	0.4583163	**0.6553652**	**0.7268529**	**0.6982369**	**0.7840358**	**0.7172575**
0.5904459	**0.7963744**	**0.9038781**	**0.9367255**	**1.0220704**	**1.103647**	**1.03116**
0.613624	**0.6586104**	**0.7722839**	**0.8919199**	**0.9362663**	**0.9918218**	**0.9929006**
0.5940843	**0.7547273**	**0.7991513**	**0.9221745**	**0.8715855**	**0.9899652**	**0.9998107**

Table 11 shows the T Matrix Value Calculate the Average of the Matrix and Its Threshold Value (Alpha) Alpha 0.600493703 If the T matrix value is greater than the threshold value then bolds it.

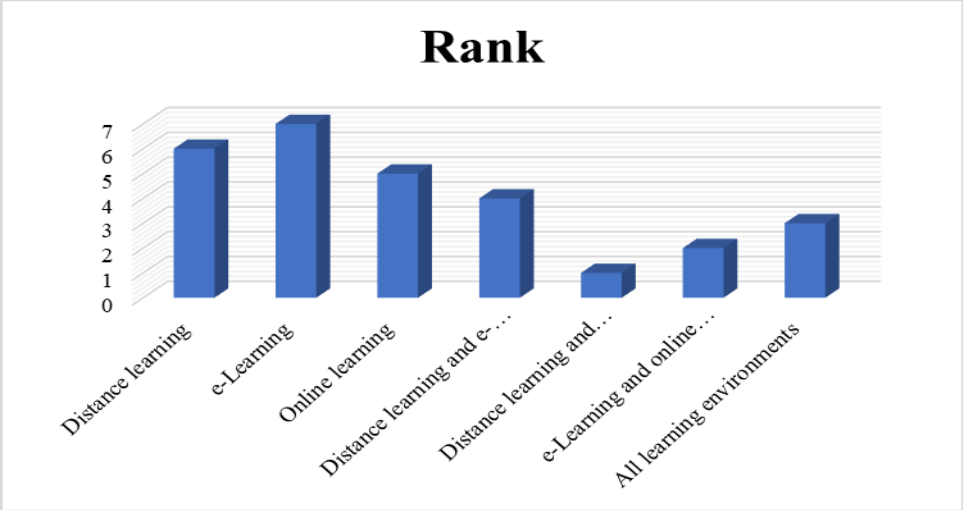

FIGURE 5. Final result of ranking

Figure 5 shows the Rank using the DEMATEL for Different learning environment in Distance learning (A1) is got sixth rank, e-Learning(A2) is got seventh rank, Online learning(A3) is got fifth rank, Distance learning and e-Learning (A4) is got fourth rank, Distance learning and online learning (A5) is got first rank, e-Learning and online learning (A6) is got second rank and All learning environments (A7) is got third rank.

5. CONCLUSION

In the interest of tackling concepts for further research that have been weaved throughout this discussion, we would like to concentrate on three main paths. Reiterating what Linamarin-Garcia & Begrune indicated in the beginning, researchers studying emotions must explicitly define such feelings and properly link their assessment of sentiments with their own conceptual frameworks. They intend to study emotions through face-to-face sessions, but we think online learning is more appropriate for the task. Technology-enhanced "educational environments" in particular offer students' experiences a subtle emotional element that might not be equivalent face-to-face. In addition to experiencing emotions when studying, taking tests, and "attending class," kids may also experience reactions to technology." It is more important than ever to consider both the feeling and its underlying source. Future research on emotions in online courses may also result in some significant methodological breakthroughs. When technology is integrated in this learning environment, researchers are challenged to consider how technology might be used to analyse emotion, generate emotional journey, and enhance emotional journey. A diverse but regulated approach toward defining, attempting to measure, and conceptualizing the exploration of emotion in e-learning situations is poised to make significant advancements in both our understanding of emotion & student learning with the addition of this special issue. Hierarchical degradation deals with the presence of many impacts and offers a conceptual method for lessening the overall DEMATEL difficulty of complex systems, in contrast to vertical disintegration, which deals the with existence of structure and numerous system components. Second, it is proposed to use a significant and direct analysis to build IDR matrices for every subsystem's constituent parts. This would speed up the process of making judgements for constituent parts of different subsystems. Last but not least, the ITR vectors throughout all permutations of subsystems are merged to generate an overall super Income tax return matrix, which encompasses the profound and immediate degrees of all factors in complex systems. To locate the essential variables, a multi-level component design and the super ITR grid are combined in a three interrelated DEMATEL technique. Some problems are too difficult or challenging for current DEMATEL techniques to handle. In this study, we try to develop a novel way to solve important factor analysis problems with ambiguous language words. Using the conventional DEMATEL method to an unknowing linguistic situation is the main idea. The new DEMATEL approach should provide the information transformations, integrated operation for linguistically ambiguous concepts, policy, and process in order to achieve this. In this article, we suggest an expanded DEMATEL approach for use in linguistically ambiguous situations. To handle the correlation data in the initial uncertain cross correlation matrices, a formula is first introduced for converting doubtful linguistic variable into trapezoidal fuzzy numbers. A group ambiguity direct-correlation matrix is created using the modified uncertainty direct-correlation matrix of each expert. Distance learning and online learning (A5) is got first rank and e-Learning(A2) is got seventh rank

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