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Evaluation of Digital Whiteboard Foster Student Engagement Using DEMATEL

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Abstract

Digital Whiteboard Foster Student Engagement an interactive clever board, additionally called an electronic white board, is a study room device that lets in pictures from a pc display to be displayed on a school room board using a digital projector. The trainer or pupil can "interact" without delay with the pictures on the display the use of a tool or finger. I will display how those two axes create a -dimensional "map" with 4 engagements: "Scaffolding," "Convenient," "Active," and "Duty." I finish that a few delivery strategies lean extra closer to one quadrant than the opposite Research shows that using an interactive whiteboard in class increases student learning and engagement. DEMATEL (Decision Making Trial and Evaluation Laboratory) they are divided into analysis using the Digital Whiteboard Foster Student Engagement in Social Engagement, Intellectual Engagement, Emotional Engagement, Physical Engagement, and Behavioral Engagement is Evaluation Parameters Digital Whiteboard Foster Student Engagement in the value. Digital Whiteboard Foster Student Engagement in Social Engagement is got the first rank whereas is the Intellectual Engagement number is having the lowest rank.

Keywords: Digital Whiteboard, Social Engagement, Physical Engagement

1. Introduction

An interactive clever board, additionally called an electronic white board, is a study room device that lets in pictures from a pc display to be displayed on a school room board using a digital projector. The trainer or pupil can "interact" without delay with the pictures on the display the use of a tool or finger. I will display how those two axes create a -dimensional "map" with 4 engagements: "Scaffolding," "Convenient," "Active," and "Duty." I finish that a few delivery strategies lean extra closer to one quadrant than the opposite; Any lesson – regardless of transport – must use gaining knowledge of activities from engagement in the study room: behavioral, cognitive, and affective (Fredericks, Blumenfeld, & Paris, 2004). These 3 types are awesome, however interrelated. Making studying a laugh is a tremendous way to maintain college students engaged, and using games is one of the easiest approaches to do this. There are many unique on-line games that teachers can use to create fun studying activities for his or her college students, which include virtual trivia, virtual dictionary or digital musical chairs! Encourage scholar engagement and make the gaining knowledge of system more interesting, Internet connectivity contains different studying styles, makes lesson revision greater convenient, permits teachers to engage themselves more with the aid of identifying pupil likes and dislikes and changing activities and applications as wanted. He recommends reflecting on each lesson and considering how the trainer and students can work together to improve the getting to know procedure. Some of the benefits of whiteboards in the school room consist of elevated scholar engagement, differentiation of studying zones, pleasant motor skill enhancements, and versatility in coaching. One advantage of interactive whiteboards is they permit simultaneous data access from more than one points. However, this advantage can quickly grow to be a disadvantage if a board distorts or confuses information coming from multiple input gadgets simultaneously. All Answers (6) in a set of teaching techniques. It's undoubtedly a time-saver at times, has some great features, and I really like saving and sharing spontaneous whiteboard notes in a class session. Decision Testing and Evaluation Laboratory (DEMATEL) is proposed to analyze and solve complex and interrelated problem groups, as it tries to improve them by checking the dependencies between variables and providing a specific map. Interrelationships between factors and identification of critical ones through visual structural modelling.

2. Digital Whiteboard Foster Student Engagement

A virtual Whiteboard is an interactive screen show It users media, audio, images or register other records collaboration to draw and deliver helps to beautify Students can have interaction with each different, in addition to the content material. The wealthy records of interactive digital whiteboards in primary and secondary schooling has supplied clean tips for his or her use in coaching and getting to know (Heemskerk, Kuiper, & Meijer, 2014; Ipek & Sozcu, 2016). They factor out that there's a consistent upward push in their application with the accepted use of interactive virtual whiteboards in number one and secondary schools in many countries (such as the Netherlands and the United Kingdom) [1]. Introducing an interactive whiteboard (IWB), which novices can use interactively in the course of entire-elegance teaching, can provide new possibilities to publicly explicit their ideas the use of now not only verbal however additionally graphical and different representations. So they can extra without problems demonstrate medical understanding and acquire trainer (and peer) feedback. IWB provide collaborative possibilities for reasoning, hypothesis trying out, and interpretation that go past what is obtainable by way of greater established school room devices [3]. Electronic white board in my classroom. These ideas encompass subjectivity, identification formation, and worldviews (Lankshear & Knobel, 2003), which are formed or fashioned in the classroom, perhaps because of our paintings with era in literacy instruction. I additionally share what we as critical educators can do in

our paintings with college students and era, in this situation, digital whiteboards, to aid student studying and shape understandings of literacy and how literacy must be utilized by students [4]. A virtual whiteboard is incorporated with synchronous elegance sessions to finish the instructional experience. During those sessions, students and teachers interacted to generate thoughts and socialize studying. The purpose of this take a look at turned into to assess the impact of introducing a digital whiteboard on student engagement. The size method collected students' perceptions via an online survey with 12 gadgets. The consequences showed that scholars enjoyed the dynamic (four.Fifty six) and college students believed that the integration of the digital whiteboard contributed (4.72) to their knowledge of abstract principles (4.Eighty three). Designing instructional programs that comprise those sources translates into energetic studying dynamics that foster scholar engagement [2]. This architectural development coincided with swiftly-evolving branch-huge technological advances that challenged traditional teaching techniques at this faculty. Church teachers desired to make sure that investment in destiny constructing initiatives and new technology would benefit college students by means of having a high-quality effect on future coaching pedagogy, scholar studying and scholar engagement [11]. Perhaps one of the maximum debatable aspects of a tablet version is the archiving of lecture notes. Many chemistry college students in any respect ranges do no longer prevail due to the fact they lack complete and accurate references to look at and study cloth outside of sophistication. Archived lecture notes obtained from pill PCs can assist these students and provide a exceptional production of lectures that enhances textbooks and other studying sources. Potential terrible results of providing lecture notes are that students won't attend elegance often or sit down passively in magnificence. Although quantitative data on scholar attendance had been now not to be had, there was no tremendous distinction in pupil attendance among conventional and tablet-improved codecs [12]. The introduction of social media and its use within the school room offers instructors with the opportunity to foster scholar engagement during non-academic durations. Furthermore, social media permits 1/3 parties along with different educators, college students, and specialists to have interaction in the situation, which was no longer feasible before the proliferation of social media [13]. Often, retaining pupil engagement whilst not requiring students to be bodily present on the lecture is a good stability if the recording may be viewed at any time after the lecture. Concern about losing face-to-face touch with college students (Masood et al., 2011), at the side of other debates surrounding pedagogical practices along with how to investigate scholar participation in physical activities and lectures (Sweeney et al., 2004) versus an online 'bulletin board method' [15] Creates a arguable space for discussing the connection between Interactive Whiteboard (IWB) technology utility. All teachers had full-time school room get entry to and have been new to IWB at the beginning of the year. The studies statistics mentioned on this paper are derived from a examine investigating the educational desires and developmental trajectories of EFL instructors as they included interactive whiteboard technology into the curriculum inside the context of secondary colleges in Iran [16]. The use of interactive whiteboards in colleges has emerge as extensive in many countries round the world. This proliferation has befell no matter the modest costs of buying and keeping interactive whiteboard (IWB) technology and the now and again significant burdens on schooling workforce to apply them efficiently. Increasing students' motivation in this view, the technological abilities of the IWB and its assistant software program make college students extra persuasive and successfully have interaction them within the route content material. Investing monetary and human assets in IWB generation is taken into consideration in part as it promises extra engaging getting [17]. Another strand of discussions dealt with how a device inclusive of the interactive whiteboard was acquired in college students' real practice of their colleges. The dialogue became initiated through a lady pupil who changed into a trainer herself in her every day exercise: 'Most of the classrooms in my place of job have smart boards installed. I see that as a massive gain, even though clever forums are greeted with wonderful skepticism among my colleagues. I discover that whiteboards can add textual content from books and spoken words in conjunction with pics and animations. It hence paves the manner for instructional layout that carries aesthetic dimensions. New gear are met with skepticism from teachers, a lot of whom experience reluctant and reluctant to new challenges' (scholar, first semester, our translation) [18]. First, self-directed studying (SDL) become explored as a manner to aid the transition from undergraduate to postgraduate gaining knowledge of. Research then discovered the perceived cost of on-line mastering equipment (on-line checks and podcasts) that facilitated SDL. The examine also reviews analyzes of students' earlier information, motivation, and engagement with studying. After the consultation, college students got the equal test with accurate answers. In this way, the test become used now not best as a formative evaluation, however also as remarks and self-monitoring (Sadler 1989). Overall, this mixed transport model pursuits to foster know-how transfer by using engaging college students within the subject matter discussed subsequent [14]. In Excerpts 2a and 2b, the teacher become tapping TF guidelines as they were carried out via students of their speech in real time, visible to the whole elegance, growing a dynamic sample of their incidence. The college students' egalitarian talk, which induced them to faucet into the trainer's positive communicate rule, effectively modeled for listening peers the sorts of contributions valued through the teacher and thereby the elegance. Evolving representations supplied the complete elegance with the help of their teachers' taping, an possibility to constantly evaluate the contributions of their classmates and judge for themselves the effectiveness of each contribution in stimulating similarly thoughts and concepts [5]. There is simplest one take a look at analyzing how net conferencing affects emotional engagement, despite the fact that students who participated in net conferencing had better ranges of hobby in path content than folks who did not (Francescucci & Foster, 2013). One feasible reason for the wonderful cognitive and affective engagement findings is that web-conferencing software offers many capabilities that inspire energetic studying. For instance, whiteboards and breakout rooms provide possibilities for real-time, collaborative hassle-fixing sports and discussions. However, similarly research are had to isolate and evaluate specific net-conferencing features to determine which has the best impact on student engagement [6]. The teachers randomly decided on a group of six of their students and worked with them at some stage in the course of the university revel in. Given the limited size of the organization, we chose to divide it equally to contain each authors, for that reason giving us the opportunity to get extraordinary evaluations from them. One of the participating teachers became female and the alternative male teacher, every with about 10 years of experience in specifically mathematics and

natural technological know-how topics. Both instructors had been acquainted with IWBs earlier than the Callboard exams; however, neither had ever used a digital pen earlier than. They on occasion used IWBs in approaches similar to conventional whiteboards, which includes providing didactic content material, solving example sports, and growing annotations. They extensively utilized IWB as a method of delivery [7]. Technology allowed instructors opportunities to plan activities based totally on their students' previous understanding. This was obvious in Case H, wherein Helen used the Plungers app to conduct pre-exams. Plungers replicate using a study room response system that uses character scholar codes published on cards rather than person devices or clicker gadgets. Because Helen's school did no longer have a BYOD application and had confined get right of entry to to college students' gadgets for the duration of records collection, Plucker allowed her to gather data on her students' pre-existing understanding the use of more than one-desire questions, an interactive whiteboard, and her non-public mobile smartphone. . Helen talked about how she makes use of this statistics to tell teaching, acquire assessment statistics and percentage pupil work with dad and mom. While this method is without difficulty replicated the use of traditional pen and paper evaluation, era affords immediately consequences, saves time, and engages kids in the system with greater engagement and impact [8]. In reality, he best used the IWB to present a scanned textbook. He did now not take advantage of the capacity of the whiteboard to sell interactive studying and for college kids to explore and construct know-how. Also, when considered with software program capability, he used generation as a complete supplement to the curriculum [9].

Social Engagement: Social engagement is online a person in society consists of level of participation and communication. The goal of social engagement is for the individual an emotional bond between society It's about making connections. These communities are often led by or associated with a brand or organization.

Intellectual Engagement: Intellectual engagement. Embrace challenge and curiosity. Explore topics with a desire to discover and make connections. Intrinsic motivation to learn, perhaps with others. To construct knowledge.

Emotional Engagement: Simply put, emotional involvement It is the engagement and interest of students in school when students are emotionally involved they participate in school, and that participation Emotional engagement motivates employees to work and contribute with the same enthusiasm and commitment, regardless of the disruptions. It would be a good idea for companies to measure their employees' emotional engagement score and introduce tools and practices to increase it.

Physical Engagement: Physical engagement employees do their job physically and mentally while doing to what extent they spend their efforts indicates that con employees do their job and 'fly around' themselves during the experience he used descriptive examples a high level of personal involvement during that time.

Behavioural Engagement: Behavioural engagement refers to students engaging in learning to observe; it is the students in academic activities participatory and educational activities represents attempts to make (Fredricks et al. 2004; Suarez-Orozco et al. 2009). behavioural involvement Student involvement in school activities behavior in class and motivation for academic work refers to In these activities participation in school also has positive academic outcomes also important for preventing dropouts.

3. DEMATEL

The DEMATEL method is a specific problem, pinup binding Work through problems and a hierarchical structure Contribute to identifying workable solutions Structural modeling techniques, for one reason Interrelationships between components of the organization Dependency identification and context It can affect the basic concept of relationships. And Chart direction due to influence of elements Makes more use of graphs [15]. DEMATEL Based on the basic principle Structured, it's visualization Processes problems by method and analyzes and solves. Modelling this structure Approach adopts the form of a driven diagram, which is a causal effect for presenting values of influence between interrelated relationships and factors. By analysing the visual relationship of conditions between systemic Factors, all components A causal group and a the effect is divided into groups. It also provides researchers with Structure between system components Better understanding of the relationship and complexity for troubleshooting computer problems Can find ways [16]. The DEMATEL system is integrated Emergency management together Manage. In the manner proposed, it is not necessary to defuzzify obscure numbers before using the DEMATEL method. Therefore, this method is uncertain of evaluation Will truly reflect the character. Finally, to get the final results from different aspects Twice in each integrated PPA We use DEMATEL, which is ours [17]. Decision Testing and Assessment Laboratory (DEMATEL). The DEMATEL method is a powerful method gathering team knowledge to build a structured model and visualizing the causal relationship of subsystems. But crisp values The ambiguity of the real world Is adequate reflection [18]. DEMATEL explores the interdependence between equity The amount of investment factors and factors and ANP to assess their dependencies Integrates. This section is, first of all, DEMATEL Establishes network relationships through, secondly, for each factor ANP to increase weight compared to Uses. Third, systematic data collection process is provided [19]. The DEMATEL method effectively calculates the consequences between criteria, which efficiently separates the set of complicated elements right into a sender organization and a recipient institution and transforms it right technique to choosing a management gadget Between alternate configurations Explicit Priority Weights come from in addition, the ZOGP model allows companies to make full use of limited resources for planning to implement optimal management systems [20]. DEMATEL methods. This influence and causal Group barriers pro or Source for affected group barriers Can be considered due. Therefore, in order to effectively implement electronic waste management, barriers belonging to a causal or an influential group should be considered on a priority basis. Therefore, decision makers need to determine obstacles the legal framework is strong make sure there is controllable in order to minimize impact or influence barriers. Therefore, derived from ISM and DEMATEL methods the results are somewhat consistent. Integrated ISM DEMATEL Results for e-waste management constraints determines not only the structure but also the structure the interactions between these barriers [21]. DEMATEL studies, specific purpose for which DEMATEL is used. categories: Factors or Only

relationships between criteria The first type of clarification; Second type is to identify the main factors in terms of causal relationships and interrelationships size; The third category is relations of criteria and analysis of impact levels by doing the scale determines the weight [22]. DEMATEL method. Accordingly, the preliminary drawback (cluster one) became about topics including the comparative weights of selection makers in the DEMATEL approach who did now not well bear in mind linking to the team decision making. Obviously, in a group decision-making hassle, regular decision-makers can always trust their factor of view and count on it to be prevalent via other selection-makers. This way that very last evaluation guides must be close to their judgments, and if the very last assessment effects are near their critiques, the choice maker is willing to simply accept it; Otherwise, they may deny it. It is believed that a significant purpose for the aforementioned discrepancies lies in methods based on unstructured comparisons such as DEMATEL [23]. DEMATEL is widely accepted for analysing the overall relationship of factors and classifying factors into cause and effect types. Therefore, this article considers each source as a criterion in decision making. Based on DEMATEL, the significance and level of significance of each piece of evidence can to deal with a mixture of conflicting evidence, it is necessary to expand the DEMATEL method with the source theory for better conclusions. In this article, instead of the comparative criteria provided by the experts in DEMATEL [24], the corresponding propositions between the bodies of sources is changed. The DEMATEL technique used the as well as creating causal relationships between criteria for evaluating the Integrated Multiple Scale Decision Making (MCDM) Outreach Personnel Program. Integrates DEMATEL and a new cluster-weighted system in which DEMATEL system is a company The reason for the complexity between the criteria This is to visualize the structure of relationships It is also used to measure the influence of criteria. Buyukozkan and Ozturkcan integrated ANP and DEMATEL an innovation in terms of technology Have developed an approach, which is for companies Helps determine important Six Sigma Projectsand logistics specifically prioritize these projects Helps to identify in companies [25].

4. Analysis and Discussion

TABLE 1. Digital Whiteboard Foster Student Engagement

	Social Engagement	**Intellectual Engagement**	**Emotional Engagement**	**Physical Engagement**	**Behavioural Engagement**	**Sum**
Social Engagement	0	1	4	2	2	9
Intellectual Engagement	3	0	2	1	1	7
Emotional Engagement	2	1	0	3	2	8
Physical Engagement	2	3	2	0	2	9
Behavioural Engagement	2	1	1	2	0	6

Table 1 shows that DEMATEL Decision making trail and evaluation laboratory in Digital Whiteboard Foster Student Engagement with respect to Social Engagement, Intellectual Engagement, Emotional Engagement, Physical Engagement, Behavioural Engagement.

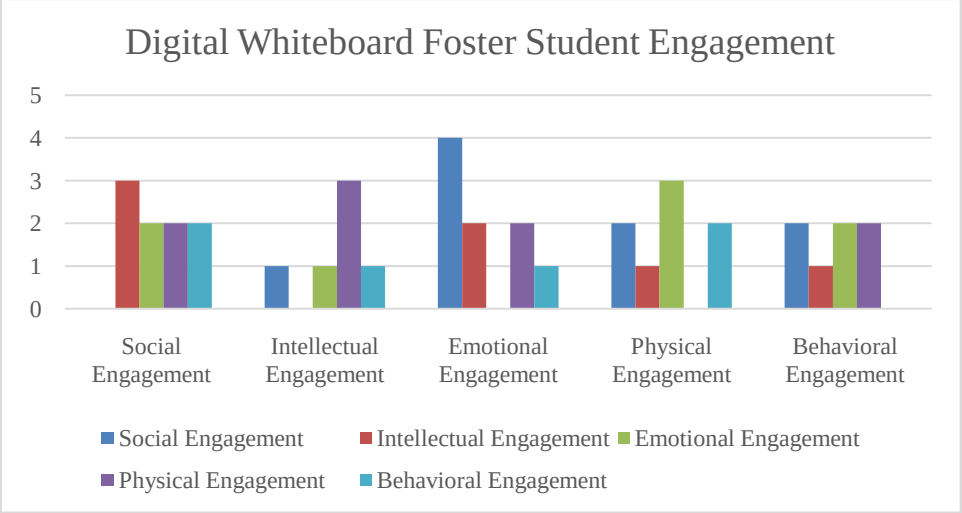

FIGURE 1. Digital Whiteboard Foster Student Engagement

Figure 1 shows that DEMATEL Decision making trail and evaluation laboratory in Digital Whiteboard Foster Student Engagement with respect to Social Engagement, Intellectual Engagement, Emotional Engagement, Physical Engagement, and Behavioural Engagement. It is the Digital Whiteboard Foster Student Engagement and comparison of Digital Whiteboard Foster Student Engagement is sum of the image.

TABLE 2. Normalization of Direct Relation Matrix

	Social Engagement	**Intellectual Engagement**	**Emotional Engagement**	**Physical Engagement**	**Behavioural Engagement**
Social Engagement	0	0.111111111	0.44444444	0.222222222	0.222222222
Intellectual Engagement	0.333333333	0	0.22222222	0.111111111	0.111111111
Emotional Engagement	0.222222222	0.111111111	0	0.333333333	0.222222222
Physical Engagement	0.222222222	0.333333333	0.22222222	0	0.222222222
Behavioural Engagement	0.222222222	0.111111111	0.11111111	0.222222222	0

Table 2 shows that the Normalising of direct relation matrix in with respect to Social Engagement, Intellectual Engagement, Emotional Engagement, Physical Engagement, and Behavioural Engagement with respect to Social Engagement, Intellectual Engagement, Emotional Engagement, Physical Engagement, and Behavioural Engagement. The diagonal value of all the data set is zero.

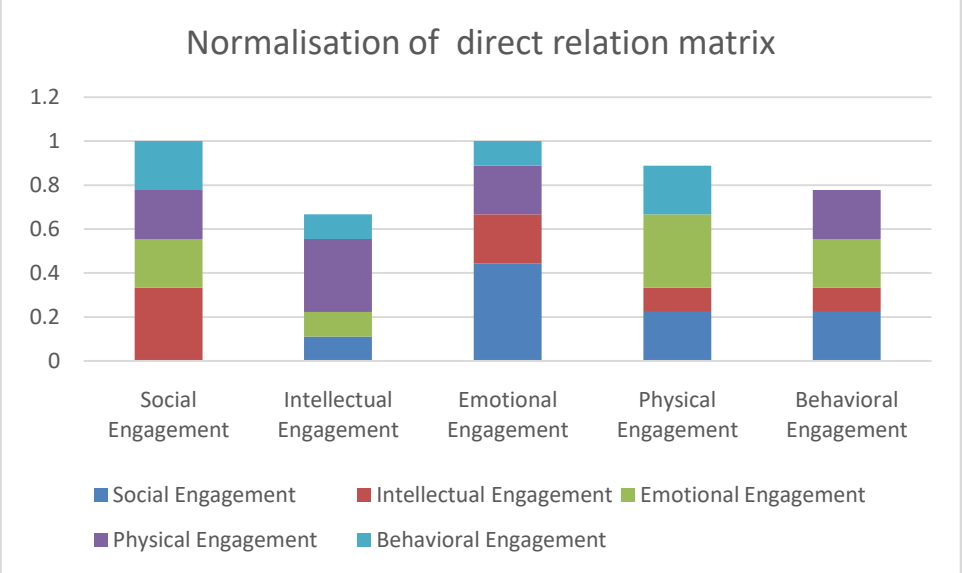

FIGURE 2. Normalisation of Direct Relation Matrix

Figure 2 Shows that chart for Normalising of direct relation matrix Social Engagement, Intellectual Engagement, Emotional Engagement, Physical Engagement, and Behavioural Engagement has Different value.

TABLE 3. Calculate the Total Relation Matrix

	Social Engagement	**Intellectual Engagement**	**Emotional Engagement**	**Physical Engagement**	**Behavioral Engagement**
Social Engagement	0	0.11111	0.444444444	0.222222	0.222222
Intellectual Engagement	0.3333333	0	0.222222222	0.111111	0.111111
Emotional Engagement	0.2222222	0.11111	0	0.333333	0.222222
Physical Engagement	0.2222222	0.33333	0.222222222	0	0.222222
Behavioral Engagement	0.2222222	0.11111	0.111111111	0.222222	0

Table 3Shows theCalculate the total relation matrix in Digital Whiteboard Foster Student Engagement Social Engagement, Intellectual Engagement, Emotional Engagement, Physical Engagement, and Behavioural Engagement is Calculate the Value.

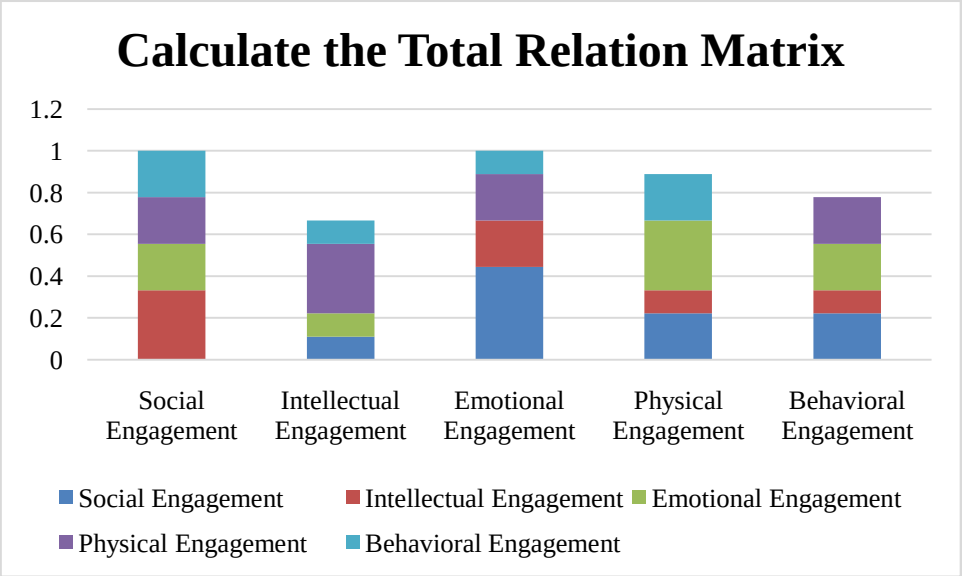

FIGURE 3. Calculate the Total Relation Matrix

Figure 3 shows the Calculate the Total Relation Matrix in Digital Whiteboard Foster Student Engagement Social Engagement, Intellectual Engagement, Emotional Engagement, Physical Engagement, and Behavioural Engagement is Calculate the Value.

TABLE 4.T= Y(I-Y)-1, I= Identity matrix

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

Table 4Shows theT= Y(I-Y)-1, I= Identity matrix in Digital Whiteboard Foster Student Engagement Social Engagement, Intellectual Engagement, Emotional Engagement, Physical Engagement, and Behavioural Engagement n is the common Value.

TABLE 5. Y Value

0	0.111111	0.444444	0.222222	0.222222
0.333333	0	0.222222	0.111111	0.111111
0.222222	0.111111	0	0.333333	0.222222
0.222222	0.333333	0.222222	0	0.222222
0.222222	0.111111	0.111111	0.222222	0

Table 5Shows the Y Value in Digital Whiteboard Foster Student Engagementis Social Engagement, Intellectual Engagement, Emotional Engagement, Physical Engagement, and Behavioural Engagement is the Calculate the total relation matrix Value and Y Value is the same value.

TABLE 6.I-Y Value

1	-0.11111	-0.44444	-0.22222	-0.22222
-0.33333	1	-0.22222	-0.11111	-0.11111
-0.22222	-0.11111	1	-0.33333	-0.22222
-0.22222	-0.33333	-0.22222	1	-0.22222
-0.22222	-0.11111	-0.11111	-0.22222	1

Table 6Shows the I-Y Value Digital Whiteboard Foster Student Engagementis Social Engagement, Intellectual Engagement, Emotional Engagement, Physical Engagement, and Behavioural Engagement table 4 T= Y(I-Y)-1, I= Identity matrix and table 5 Y Value Subtraction Value.

TABLE 7. (I-Y)-1Value

2.564094701	1.238162	1.961298	1.699092	1.520792
1.550601079	1.924865	1.548393	1.341389	1.200626
1.610770363	1.153705	2.489573	1.627331	1.401006
1.734973013	1.378373	1.790174	2.465285	1.48436
1.306611874	0.923516	1.282323	1.255275	1.956882

Table 7 Shows the (I-Y)-1Value Digital Whiteboard Foster Student Engagementis Social Engagement, Intellectual Engagement, Emotional Engagement, Physical Engagement, and Behavioural EngagementTable 6 shown the Minverse Value.

TABLE 8. Total Relation matrix (T)

	Total Relation matrix (T)				
Social Engagement	1.564094701	1.238162	1.961298	1.699092	1.520792
Intellectual Engagement	1.550601079	0.924865	1.548393	1.341389	1.200626
Emotional Engagement	1.610770363	1.153705	1.489573	1.627331	1.401006
Physical Engagement	1.734973013	1.378373	1.790174	1.465285	1.48436
Behavioural Engagement	1.306611874	0.923516	1.282323	1.255275	0.956882

Table 8 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.

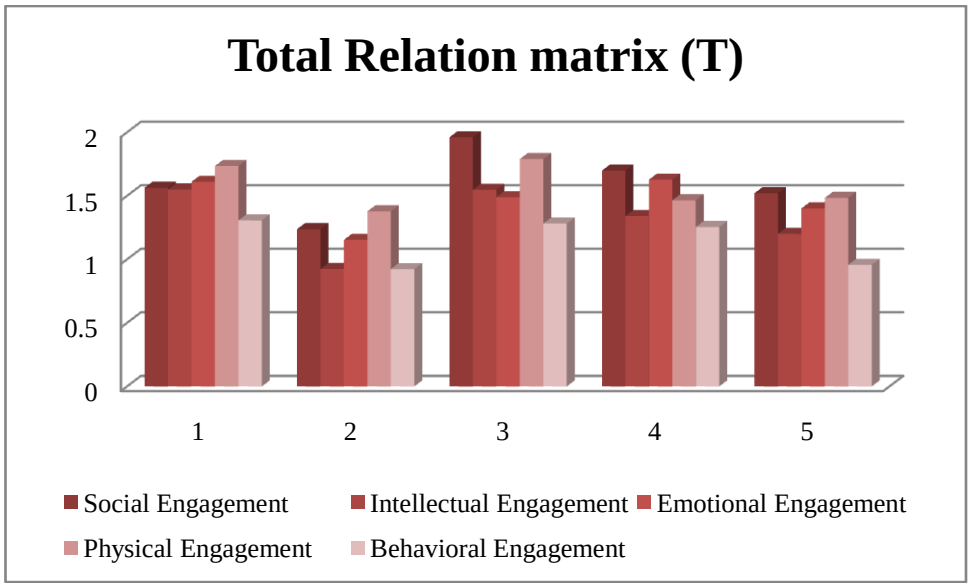

FIGURE 4. Total Relation Matrix (T)

Figure 4shows 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.

TABLE 9. Digital Whiteboard Foster Student Engagement Ri, Ci Value

	Ri	Ci
Social Engagement	7.98344	7.767051
Intellectual Engagement	6.565873	5.618621
Emotional Engagement	7.282385	8.071762
Physical Engagement	7.853165	7.388371
Behavioural Engagement	5.724607	6.563665

Table 9 shows the Digital Whiteboard Foster Student EngagementRi, Ci Value Social Engagement is showing the Highest Value for Ri and Behavioural Engagement is showing the lowest value. Emotional Engagement is showing the Highest Value for Ci and Intellectual Engagement is showing the lowest value.

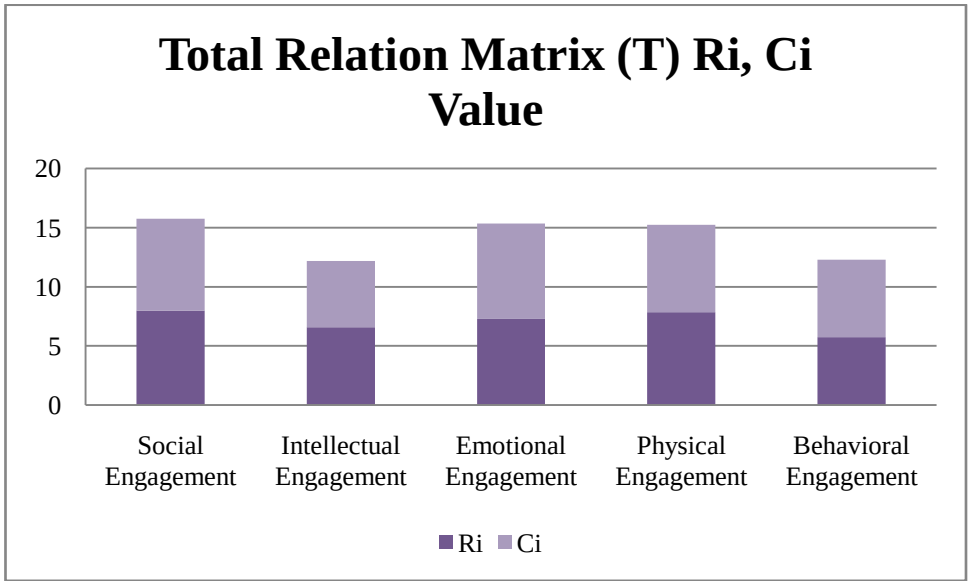

FIGURE 5. Total Relation Matrix (T) Ri, Ci Value

Figure 5shows the Total Relation Matrix (T) Ri, Ci Value Digital Whiteboard Foster Student EngagementRi, Ci Value Social Engagement is showing the Highest Value for Ri and Behavioural Engagement is showing the lowest value. Emotional Engagement is showing the Highest Value for Ci and Intellectual Engagement is showing the lowest value.

TABLE 10. Calculation of Ri+Ci and Ri-Ci To Get The Cause And Effect

	Ri+Ci	**Ri-Ci**	**Rank**	**Identity**
Social Engagement	15.75049	0.216389	1	cause
Intellectual Engagement	12.18449	0.947252	5	cause
Emotional Engagement	15.35415	-0.78938	2	effect
Physical Engagement	15.24154	0.464794	3	cause
Behavioural Engagement	12.28827	-0.83906	4	effect

Table 10 shows the Calculation of Ri+Ci and Ri-Ci to Get the Cause and Effect. Digital Whiteboard Foster Student Engagement is Social Engagement, Intellectual Engagement, Emotional Engagement, Physical Engagement, and Behavioural Engagementof Social Engagement, Intellectual Engagement Physical Engagement is Showing the highest Value of cause. Emotional Engagement, Behavioural Engagement, is showing the lowest Value of effect.

TABLE 11. T Matrix Value

1.564095	1.238162	**1.961298**	**1.699092**	**1.520792**
1.550601	0.924865	**1.548393**	1.341389	1.200626
1.61077	1.153705	**1.489573**	**1.627331**	1.401006
1.734973	1.378373	**1.790174**	**1.465285**	**1.48436**
1.306612	0.923516	1.282323	1.255275	0.956882

Table 11 shows the T Matrix Value Calculate the Average of the Matrix and Its Threshold Value (Alpha)**Alpha 1.416378803** If the T matrix value is greater than threshold value then bolds it.

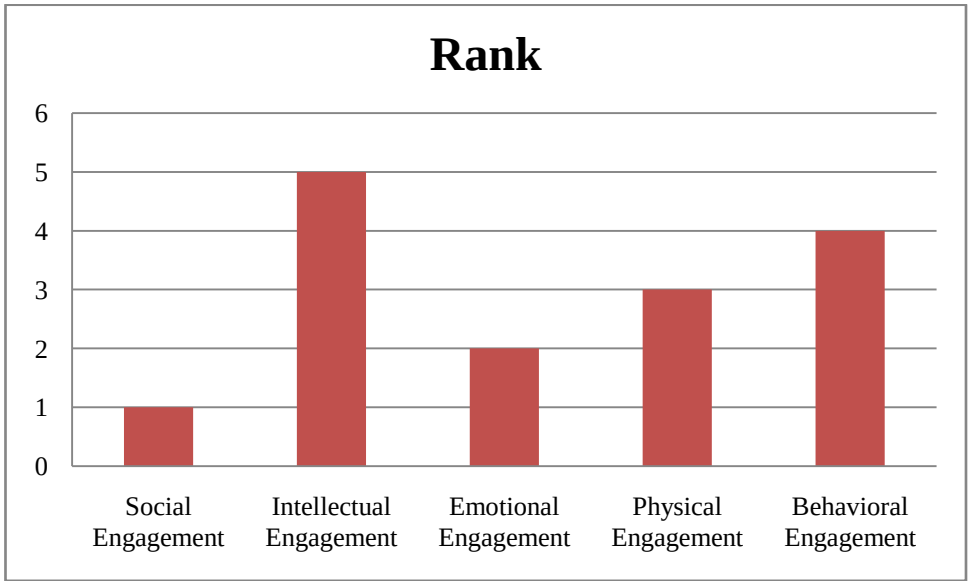

FIGURE 6. Rank

Figure 6shows the Rank using the DEMATEL for Digital Whiteboard Foster Student Engagement in Social Engagement is got the first rank whereas is the Intellectual Engagement number is having the Lowest rank.

5. Conclusion

A virtual Whiteboard is an interactive screen show It users media, audio, images or register other records collaboration to draw and deliver helps to beautify Students can have interaction with each different, in addition to the content material. The wealthy record of interactive digital whiteboards in primary and secondary schooling has supplied clean tips for his or her use in coaching and getting. The DEMATEL method can Specific problem, pinup Bound problems, and structural modelling techniques that can contribute to identifying solutions that can work through a hierarchical structure, identifying the interdependence between the components of an organization for a reason, and influencing the fundamental Concept of situational relations and Due to the influence of the elements The chart uses a lot the directional graphs Built on the basic principle of DEMATEL, it executes Issues by visualization method Analyses and solves. DEMATEL (Decision Making Trial and Evaluation Laboratory) they are divided into analysis using the Digital Whiteboard Foster Student Engagement in Social Engagement, Intellectual Engagement, Emotional Engagement, Physical Engagement, and Behavioral Engagement is Evaluation Parameters Digital Whiteboard Foster Student Engagement in the value. Digital Whiteboard Foster Student Engagement in Social Engagement is got the first rank whereas is the Intellectual Engagement number is having the Lowest rank.

References

[1]. Campbell, Michael, Maridelys Detres, and Robert Lucio. "Can a digital whiteboard foster student engagement?." *Social Work Education* 38, no. 6 (2019): 735-752.

[2]. Hennessy, Sara, Rosemary Deaney, Kenneth Ruthven, and Mark Winterbottom. "Pedagogical strategies for using the interactive whiteboard to foster learner participation in school science." *Learning, media and technology* 32, no. 3 (2007): 283-301.

[3]. Solvie, Pamela A. "Leaping out of our skins: Postmodern considerations in use of an electronic whiteboard to foster critical engagement in early literacy lessons." *Educational Philosophy and Theory* 39, no. 7 (2007): 737-754.

[4]. Imms, Wesley, and Terry Byers. "Impact of classroom design on teacher pedagogy and student engagement and performance in mathematics." *Learning Environments Research* 20, no. 1 (2017): 139-152.

[5]. Derting, Terry L., and James R. Cox. "Using a tablet PC to enhance student engagement and learning in an introductory organic chemistry course." *Journal of Chemical Education* 85, no. 12 (2008): 1638.

[6]. Scott, Olan Kees Martin, and Alicia R. Stanway. "Tweeting the Lecture: How Social Media Can Increase Student Engagement in Higher Education." *Sport Management Education Journal (Human Kinetics)* 9, no. 2 (2015).

[7]. Campbell, Chris, and Sue Monk. "Introducing a learner response system to pre-service education students: Increasing student engagement." *Active Learning in Higher Education* 16, no. 1 (2015): 25-36.

[8]. Schmid, Euline Cutrim. "Developing competencies for using the interactive whiteboard to implement communicative language teaching in the English as a Foreign Language classroom." *Technology, Pedagogy and Education* 19, no. 2 (2010): 159-172.

[9]. Torff, Bruce, and Rose Tirotta. "Interactive whiteboards produce small gains in elementary students' self-reported motivation in mathematics." *Computers & Education* 54, no. 2 (2010): 379-383.

[10]. Nielsen, Jørgen Lerche, and Lars Birch Andreasen. "Educational designs supporting student engagement through networked project studies." In *Increasing student engagement and retention using mobile applications: Smartphones, Skype and texting technologies*. Emerald Group Publishing Limited, 2013.
[11]. Mello, Luciane V. "Fostering postgraduate student engagement: online resources supporting self-directed learning in a diverse cohort." *Research in Learning Technology* 24 (2016).
[12]. Campbell, Chris, and Sue Monk. "Introducing a learner response system to pre-service education students: Increasing student engagement." *Active Learning in Higher Education* 16, no. 1 (2015): 25-36.
[13]. Schindler, Laura A., Gary J. Burkholder, Osama A. Morad, and Craig Marsh. "Computer-based technology and student engagement: a critical review of the literature." *International journal of educational technology in higher education* 14, no. 1 (2017): 1-28.
[14]. Alvarez, Claudio, Sadaf Salavati, Miguel Nussbaum, and Marcelo Milrad. "Collboard: Fostering new media literacies in the classroom through collaborative problem solving supported by digital pens and interactive whiteboards." *Computers & Education* 63 (2013): 368-379.
[15]. Attard, Catherine, and Kathryn Holmes. "'"It gives you that sense of hope": An exploration of technology use to mediate student engagement with mathematics." *Heliyon* 6, no. 1 (2020): e02945.
[16]. Mama, Maria, and Sara Hennessy. "Level of technology integration by primary teachers in Cyprus and student engagement." *Technology, Pedagogy and Education* 19, no. 2 (2010): 269-275.
[17]. Shieh, Jiunn-I., Hsin-Hung Wu, and Kuan-Kai Huang. "A DEMATEL method in identifying key success factors of hospital service quality." *Knowledge-Based Systems* 23, no. 3 (2010): 277-282.
[18]. Lin, Ru-Jen. "Using fuzzy DEMATEL to evaluate the green supply chain management practices." *Journal of cleaner production* 40 (2013): 32-39.
[19]. Li, Ya, Yong Hu, Xiaoge Zhang, Yong Deng, and SankaranMahadevan. "An evidential DEMATEL method to identify critical success factors in emergency management." *Applied Soft Computing* 22 (2014): 504-510.
[20]. Wu, Wei-Wen, and Yu-Ting Lee. "Developing global managers' competencies using the fuzzy DEMATEL method." *Expert systems with applications* 32, no. 2 (2007): 499-507.
[21]. Lee, Wen-Shiung, Alex YiHou Huang, Yong-Yang Chang, and Chiao-Ming Cheng. "Analysis of decision making factors for equity investment by DEMATEL and Analytic Network Process." *Expert Systems with Applications* 38, no. 7 (2011): 8375-8383.
[22]. Tsai, Wen-Hsien, and Wen-Chin Chou. "Selecting management systems for sustainable development in SMEs: A novel hybrid model based on DEMATEL, ANP, and ZOGP." *Expert systems with applications* 36, no. 2 (2009): 1444-1458.
[23]. Kumar, Ashwani, and Gaurav Dixit. "An analysis of barriers affecting the implementation of e-waste management practices in India: A novel ISM-DEMATEL approach." *Sustainable Production and Consumption* 14 (2018): 36-52.
[24]. Si, Sheng-Li, Xiao-Yue You, Hu-Chen Liu, and Ping Zhang. "DEMATEL technique: A systematic review of the state-of-the-art literature on methodologies and applications." *Mathematical Problems in Engineering* 2018 (2018).
[25]. Yazdi, Mohammad, Faisal Khan, RouzbehAbbassi, and RiszaRusli. "Improved DEMATEL methodology for effective safety management decision-making." *Safety science* 127 (2020): 104705.
[26]. Zhang, Weiquan, and Yong Deng. "Combining conflicting evidence using the DEMATEL method." *Soft computing* 23, no. 17 (2019): 8207-8216.
[27]. Lee, Hsuan-Shih, Gwo-HshiungTzeng, WeichungYeih, Yu-Jie Wang, and Shing-Chih Yang. "Revised DEMATEL: resolving the infeasibility of DEMATEL." *Applied Mathematical Modelling* 37, no. 10-11 (2013): 6746-6757.

