

Impact of Active Learning Training Design on Self Efficacy Levels of Participants



Jain Mathew, Rachana Mukherjee, Sridevi Nair

Abstract: *Training evaluation and the need for effective and efficient training methods have always been the focus of researchers and practitioners alike. This search was further fuelled by the creation and identification of theories in the area of learning. Organizational researchers have been constantly borrowing from the fields of Academics in the hopes of identifying what would work best for their people. While adoption of theories has been accepted and encouraged, the understanding of the effects of the new 'Learner centric' approaches is still incomplete. The current study attempts to evaluate one proposed outcome of Self-efficacy. Literature in the area of Self-efficacy has linked the concept to training transfer. In the current study, the researchers attempt to understand the relationship between Active Learning design and Self-efficacy. The findings of the study suggest that this relationship is significant and must be considered while planning and designing training modules. The researchers also propose an equation to predict the levels of self-efficacy in the participants, given the level of participation, quality and timeliness of feedback and the learning environment.*

Keywords : *Active Learning, Self-Efficacy, Training, Training design.*

I. INTRODUCTION

Traditionally, the training process treated the learner as a passive participant in the process of learning [46]. The training approach relied on a tightly structured environment and instruction-based design. The provision of step-by-step instructions was favoured to reduce any sort of deviation from the prescribed behaviour [28], [46]. This approach to training was preferred by organizations because, in addition to retaining "control" over the training process, it was popularly considered an "efficient and effective means of developing routine expertise and promoting the transfer of skills to problems similar to those encountered in training" [23].

Recently, the focus has been shifted to the use of a more learner-centred approach to training that views learners as active participants in their own learning experience [10], [23]

[43]. This has been tested and accepted as a more effective mode of learning, especially when the learning is to result in behavioural changes. Active learning is one such strategy that "gives people control over their own learning, but also uses formal training design elements to shape the cognitive,

motivational, and emotion learning processes that support self-regulated learning" [9], [38]. This method has been accepted with the realization that the traditional methods were proving to be a liability in a flexible and constantly changing environment that is characteristic of the modern workplace. [41].

However, training is still evaluated on the basis of outcomes of the training which includes evaluations of the learning, the behavioural change and, as of more recently, the bottom line of the organization. The researchers propose that there exists an intermediate criterion of evaluation, i.e. self-efficacy. While literature has established the role of self-efficacy in the transfer of training, the relation between training methods and self-efficacy has not been established sufficiently. In the current study we explore if an Active Learning design influences the self-efficacy of the participants, post the training session. This would imply that through learner centricity and participation, active learning can also influence the levels of confidence in the training. The study also evaluates the dimensions of active learning to identify the elements that have significant impact on the self-efficacy levels of the trainees.

II. REVIEW OF LITERATURE

The current study focuses on the concept of Active Learning and its impact on post training, self-efficacy levels of participants. The relation has been proposed after a systematic review of literature in the areas of self-efficacy, active learning and the relation between self-efficacy and training in the context of organizations.

A. Active learning

As the term suggests, Active Learning methods require the learner to take a more active role in the learning process [8]. This is a contrast to the traditional approach where the learner can adopt a passive role, as in the transmission model or conduit model [44]. The method differs from the traditional approach in primarily two ways. Firstly, the traditional approach was more of an 'External' approach where the instructor was given control and not the learner [27]. In the Active Learning approach, the process is more 'internally' focused, in the sense that the learner is the one who controls the process.

Manuscript published on November 30, 2019.

*Correspondence Author

Jain Mathew*, Professor, Department of Management Studies, CHRIST (Deemed to be University), Bengaluru, India.

Rachana Mukherjee, Research Scholar, Department of Management Studies, CHRIST (Deemed to be University), Bengaluru, India

Sridevi Nair, Research Scholar, Department of Management Studies, CHRIST (Deemed to be University), Bengaluru, India. sridevi.nair@res.christuniversity.in

© The Authors. Published by Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP). This is an [open access](https://creativecommons.org/licenses/by-nc-nd/4.0/) article under the CC-BY-NC-ND license <http://creativecommons.org/licenses/by-nc-nd/4.0/>

Impact of Active Learning Training Design on Self Efficacy Levels of Participants

Secondly, the passive learning approach was more deductive in nature while the active learning approach is inductive.

In the traditional scenario, the learner was explained the principles, rules or theories and then asked to apply to their particular contexts. In the Active Learning approach, the study of the context is carried out to understand the knowledge base [44]. Hence, Active Learning promotes knowledge construction while traditional techniques promote knowledge internalization

The term Active Learning was coined by [8]. While there exists a range of definitions for the term, all of them indicate that Active Learning implies active participation in the learning process. Modules are only categorised as active learning after a careful examination of the techniques and methodology. Typically, an Active Learning session is expected to include context setting, class preparation, class delivery and continuous improvement [1]. Some of the techniques that fall into the category of Active Learning include Problem based Learning [36], Participative learning [40], Experiential Learning [32] and Cooperative learning [29]. In addition to the above features, [18] discusses the need to include components of reflection time to understand and connect concepts, think-pair-share for collaborations, purposeful questioning by the teacher to drive interaction, classroom demonstrations and activities and using humour to create lighter moments.

The process has been found to produce better results than the traditional approach. [35] found that elements of the session like feedback, reinforcement and remediation opportunity for learning mastery resulted in significantly higher transfer scores on a work task. The use of Active Learning techniques has also been found to result in increased attention span, better conceptual understanding, improved application of training and cognitive improvement in both Academic and Corporate scenarios. [39] [25] [31].

B. Self-efficacy

According to [2], self-efficacy is a measure of “people's beliefs about their capabilities to produce designated levels of performance”. According to him, the belief or confidence in ones' capabilities plays a stronger role in predicting their performance of a task than even competency. Thus, self-efficacy is a cognitive and personality trait that reflects the persons confidence in completing the task, perception of their own capability and self-belief.

The definition given by [4] suggests that self-efficacy is a result of a self-assessment. The person in question assesses and evaluates their capability to complete a task or execute certain behaviours and is different from competence. Thus, Self-efficacy about executing a particular behaviour is not the same as competence to execute the behaviour but is more related to the belief of what one can do rather what one has [5].

Empirically the relation between self-efficacy and academic achievement has been established. A large number of researchers have proved that self-efficacy can link to various indices of academic achievement. Self-efficacy has been known to play a significant mediating role between aptitude and performance in the content areas of Mathematics

and reading [52]. Reference [51] also established a significant positive relationship between self-efficacy and motivation. Additionally, it has been found that students with high self-efficacy were more likely to set higher goals [51], participate in more challenging activities [3] and set higher goals [5]. Researchers have also suggested that self-efficacy is a key predictor of the levels of engagement, performance and motivation [7], [11] [12] [15] [47] [49].

C. Training design and self-efficacy

[26] coined the term training efficacy to indicate the self-efficacy built through training activities. He proposes that the training mode adopted is key in creating the confidence in the trainee to transfer the learning to their work place. Organizational researchers have further classified self-efficacy as performance self-efficacy and training self-efficacy [48] [13]. Performance self-efficacy deals with their confidence to perform their tasks and activities successfully. Training self-efficacy deals with their confidence in transferring the learnings from a session to their actual workplace and the belief that the learnings would help improve performance. In other words, training self-efficacy reflects the employee's confidence in the training. Higher the level of confidence in the training, more motivated he or she is to apply them once back on the job [6].

Researchers have established the relationship between self-efficacy levels and training transfer [14]. In this study the researchers explore some dimensions that could impact the levels of training self-efficacy in the participants. Self-efficacy has been found to be significantly correlated to self- management strategies, goal setting, mastery experiences and feedback dimensions of training interventions [24]. Studies by [19]-[22] have also established a strong correlation between constructive feedback and self-efficacy in learners.

Based on the definition of the concept of Active Learning and the established relations between self-efficacy and different dimensions of the training program, the researchers propose that the use of active learning techniques would increase self-efficacy levels of the participants of the training program. This forms the hypothesis of the current study which is based in the corporate training context and also analyses if the dimensions of Active Learning Training Design can

Be used to predict the Self-efficacy levels of the participants, post the session.

D. Theoretical framework

In the area of Learning there are three major schools of thought; Behaviourism, Cognitivism and Constructivism. The behaviourism school of thought stems from the works of [46]. Scientists in the area define learning as a change in current behaviour or the acquisition of new behaviour. The learning process starts with the presence of a stimulus in the environment, to which the learner would respond with a change in behaviour. The consequence of the change in behaviour would determine if the change is reinforced or discouraged. The new behaviour would be repeated if the consequences are positive.

In the Cognitivism school of thought, the learner internalises the teachings through reflections.

The belief is that instead of blindly responding to a stimulus, human beings first process the new information before responding with a behaviour change. This line of thought has grown from the works of Jean Piaget. According to him, the learner would receive information, reflect on this information, attempt to link the information with the knowledge they already possess and then react.

Constructivism follows from the works of Cognitivism. Constructivist believe that one learns from experiences. Each experience is analysed and a meaning is derived from the same. These meanings are interpreted by the learner from their unique perspective and then internalised. Thus, the process of learning becomes unique to each learner.

In the context of corporate training, there is a need for a balance between the needs of the organization and the needs of the learner. While the organization requires the employee to exhibit certain behaviours, based on the learning theories, these behaviours would only be internalised if the learner accepts the knowledge. Thus, the need for the process of learning to be learner centric.

However, unlike academic learning, corporate training is evaluated on the basis of the learning that is finally transferred to the work place. This implies that the learner must come out of the session with the confidence that they have understood the knowledge shared and are capable of implementing it to their unique work situations. Thus, the researchers propose that the learning process must impact the levels of Self-efficacy of the participants. The learning process must instil in the participants the confidence that they have understood the knowledge that was shared and can effectively use the same to improve their performance at the workplace. Thus, this study explores the impact of the use of active learning techniques on the levels of self-efficacy of the participants.

III. METHODOLOGY

The current study is based on the IT sector in Bengaluru, India. The findings are based on data collected from 340 members of the sector. The sample size was calculated assuming a confidence level of 95%. The analysis of the collected data was carried out in SPSS. Data was collected using a structured questionnaire. The introductory section asked the participant to think back to an active learning

training session that they had attended and describe the different aspects of the session.

The first part of the questionnaire focussed on different aspects of an Active Learning Design. The Active Learning training design measurement items were prepared from literature in the area [3], [42], [8], [30]. The statements required the respondents to rate different aspects of a training session based on the impact, they perceived, it had on their learning.

The second part of the questionnaire focussed on Self Efficacy. Self-efficacy items are built from validated instruments [38], [34]. The statements focussed on how the participants felt after the training session. Statements were of the form “I can effectively use the knowledge and skills which I have learned during the training” and required the participant to mark their agreement on a 5-point Likert scale

IV. ANALYSIS

The analysis of the data collected was done in three stages. The first stage involved the identifications of the dimensions of an active learning design. The dimensions were identified using Factor analysis. The data collected was analysed and based on the factor loadings, the researchers were able to identify five dimensions of Active Learning Design.

Table I provides the results of the test for adequacy and sphericity. The KMO value of 0.914 suggests that a factor analysis would be relevant in the current case. The significance value ($p < 0.05$) of the Bartlett score also suggests that the identified dimensions are related and significant.

Table I: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.914
Bartlett's Test of Sphericity	Approx. Chi-Square	2432.16
	Df	378
	Sig.	.000

The dimensions were identified using the loadings of the different indicators. Table II indicates how the different indicators loaded onto the five factors. The low Communalities value led the researchers to remove certain items from the analysis.

Table II: Factor Loading

Indicator	Factor				
	1	2	3	4	5
1 Overall sharing of program objectives, agenda, training methodologies			0.534		
2 Initial ice breaking exercise	0.541				
3 Trainer contextualizing explanation to work situations of the trainees			0.691		
4 Organized training material as handout or book					0.682
5 Discussions/ Case analysis/ training games			0.641		
6 Theoretical content used during the program					0.727

Impact of Active Learning Training Design on Self Efficacy Levels of Participants

7	Use of audio/ visual aids		0.717
8	Summary of day's learning (by trainer)		0.522
9	Making notes of learning(s)		0.525
10	Debriefing of each activity (by trainer)	0.572	
11	Encouraged discussion among all participants	0.503	
13	Comfort in the training room/ facility	0.664	
14	Adequate space in the training room/ facility to suit the activity	0.804	
15	Friendly/ informal atmosphere of the training	0.548	
17	Effective conflict resolution, if any		0.586
19	Factual and objective feedback (by trainer)		0.612
20	Timely feedback given		0.604
21	Empathetic feedback provided		0.759
22	Feedback and improvement plan given	0.51	
23	Equal opportunity for participation in activities	0.666	
24	Asking questions/ clarifications encouraged	0.522	
25	Trainees selected for participation in activities (by trainer)	0.659	
26	Adequate time for activities	0.656	
27	Assessing relevance of activities and learning (by trainee)	0.558	

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization

A summary of the factor analysis is provided in Table III. The total variance explained by the five dimensions identified was found to be 61% approximately. The first dimension explains 15%, the second explains 12%, the third explains 12%, the fourth 11% and the fifth dimension explains 11% variance in the variable of Active Learning Training design. The five dimensions were labelled as Learner Participation, Instructional design, Learning environment, Feedback and Self-regulation.

Table III: Percentage of Variance Explained

Component	Total	Variance Explained (%)	Cumulative Variance
1	4.108	14.671	14.671
2	3.422	12.221	26.892
3	3.413	12.190	39.082
4	3.197	11.419	50.502
5	3.049	10.890	61.391

The dimensions were then analysed and the descriptive statistics of the variables is provided in Table IV.

Table IV: Descriptive Analysis of Variables

	Learner participation	Instructional Design	Learning environment	Feedback	Self-regulation	Self-efficacy
N	Valid 303	303	303	303	303	303
	Missing 0	0	0	0	0	0
Mean	22.71	12.57	12.81	12.47	14.54	36.07
Median	22.00	12.00	12.00	12.00	14.00	36.00
Mode	22	12	12	12	14	36
Standard deviation	1.153	1.350	1.539	1.524	1.084	3.533

Skewness	0.226	0.091	0.023	0.182	0.308	0.299
Kurtosis	-1.187	-1.590	-1.991	-1.942	-1.105	-1.279

The analysis suggests that the data may be considered normally distributed, given that the skewness values fall between ± 1.96 and Kurtosis values also fall in the range of ± 2 .

The next step involved the analysis of the correlations between the five dimensions and Self Efficacy and the overall correlation between the variable of Active Learning Training and Self-Efficacy. Table V provide a summary of the analysis of correlations.

Table V: Summary of Correlation Analysis

Dimension	Self-Efficacy	
Instructional Design	Pearson Correlation	.602**
	Sig. (2-tailed)	.000
	N	303
Learner participation	Pearson Correlation	.549**
	Sig. (2-tailed)	.000
	N	303
Learning environment	Pearson Correlation	.399**
	Sig. (2-tailed)	.000
	N	303
Feedback	Pearson Correlation	.593**
	Sig. (2-tailed)	.000
	N	303
Self-regulation	Pearson Correlation	.277**
	Sig. (2-tailed)	.000
	N	303
Active learning design & delivery	Pearson Correlation	.593**
	Sig. (2-tailed)	.000
	N	303

The correlation coefficients suggest that there exist strong correlations between the Instructional Design and the levels of Self Efficacy, the level of participation and Self Efficacy and the amount of Feedback provided and levels of Self Efficacy. The weakest correlation was found between the perceived levels of Self-Regulation and Self Efficacy. Overall Active Learning Design was found to have a strong significant relation to the levels of Self Efficacy experienced by the participants. Thus, the primary hypothesis of the study was accepted.

Since there is a relationship between the two variables, the researchers explored the possibility of predicting the levels of self-efficacy using the different dimensions of Active Learning Design. The last step in the analysis was a regression analysis to understand if the identified dimensions could be used to predict the levels of Self Efficacy. The model summary provided in Table VI suggests that the proposed equation could explain around 41% variance in the levels of Self-Efficacy.

Table VI: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.648 _a	.420	.410	3.230

a. Predictors: (Constant), Self-regulation, Feedback, Instructional Design, Learner participation, Learning environment

The model was found to be a good fit with $F_{(5,297)}=42.997$, $p<0.05$. The results of the test for model fit are provided in Table VII.

Table VII: Model Fit

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2243.558	5	448.712	42.997	.000 _b
	Residual	3099.472	297	10.436		
	Total	5343.030	302			

Table VIII provides the summary of the regression analysis.

Table VIII: Summary of Regression Analysis

Model	Coefficients			T	Sig.	
	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta			
1	(Constant)	8.159	2.325		3.509	.001
	Learning environment	.376	.080	.269	4.677	.000
	Learner participation	.549	.145	.203	3.797	.000
	Instructional Design	.174	.124	.073	1.399	.163
	Feedback	.628	.142	.255	4.431	.000
	Self-regulation	.116	.134	.041	.868	.386

a. Dependent Variable: SE

The analysis suggests that Instructional Design and Self-regulation do not significantly impact the levels of Self-efficacy ($p>0.05$). The remaining three dimensions of Learning Environment, Learner Participation and Feedback were found to be statistically significant in predicting the level of Self-efficacy of the participants.

The regression equation that may be used to predict the level of Self-efficacy for the study population is given below;

$$\text{Self - efficacy} = 8.159 + (0.376 \times \text{Learning Environment}) + (0.549 \times \text{Learner Participation}) + (0.628 \times \text{Feedback}) + 3.23 \dots (1)$$

Thus, in an Active Learning Design, the level of Feedback has the strongest impact on the level of Self-efficacy that the participant experiences. This is followed by the level of learner participation required in the training process and the learning environment.

V. DISCUSSION

The purpose of the current study was to evaluate if the use of an Active Learning Design in Training would result in higher levels of participant Self-efficacy. The analysis of the collected data suggests that for the study population, this relationship is significant. The correlation between the use of Active Learning Design and Self-efficacy was found to be a statistically significant positive relation. Thereby suggesting that Self-efficacy from training or Training self-efficacy [48] can be improved using Active Learning technique.

This can be attributed to the fact that both self-efficacy and active learning are primarily internal concepts. Self-efficacy is a result of self-analysis and reflection on ones on capabilities [6] and active learning also relies on the learner taking the lead in the learning process [27]. Based on the literature, active learning is an internal process, self-efficacy is an internal outcome.

The active learning questionnaire revealed five dimensions of the learning process, namely Learner Participation, Instructional design, Learning environment, Feedback and Self-regulation. The five dimensions cover the different aspects of a training program. The dimension of Instructional design was found to have the strongest correlation with levels of self-efficacy.

However, the regression analysis suggested that the relation was not significant in the prediction of self-efficacy levels. This suggests that the instruments used in the training and the method of instructions is useful to increase the levels of confidence but while predicting the significance may be reducing due to the presence of other related features. This is in line with the findings of [36]. His study was based in the academic context and provides empirical evidence that the instructional design can improve the levels of learning by improving the levels of Self-efficacy.

The level of Learner Participation and the constructive feedback was also found to have strong correlations to the learner's self-efficacy levels. Early studies in the area of self-efficacy have already proved these relations and the current study finds that they still hold true [19-21].

The Training environment was also found to have a moderate but significant relation to the levels of self-efficacy. This is in line with the model suggested by [16], where he found that a positive interpersonal climate and learning environment were key to improving performance by increasing self-efficacy. [24] proposed that the level of self-regulation in the learning process would influence the level of learner confidence in the training. While the current study found the relation to be significant, the strength of this relation was found to be the weakest. The level of self-regulation was also found to be not significant while predicting the levels of self-efficacy. This suggests that there is a significant relation between the levels of self-regulation and self-efficacy but the other dimensions were found to influence the levels of self-efficacy more strongly.

Having established the relationship between active learning and self-efficacy, the researchers explored the possibility of predicting the levels of self-efficacy of the learners using the dimensions of Active Learning Training Design. The regression equation explains approximately 41% variance in the levels of self-efficacy and was found to be a good fit. However only three dimensions of Learner Participation, Learning Environment and Feedback were found to be significant in predicting the levels of Self-efficacy. Feedback was found to be a key predictor of the level of self-efficacy, followed by Learner Participation and Learning Environment. Thus, as proposed by the reviewed literature, Feedback is vital in improving the self-efficacy levels of the participants, leading to increased motivation to transfer the learning to the actual workplace [34].

VI. IMPLICATION

Evaluation of training has always been keenly researched and a focus of various studies. The need to quantify and identify efficient training techniques has been recognised. Traditionally, the focus was on dissemination of knowledge, with the facilitator playing the key role and the learner a passive participant. Over the last couple of years, the need to make the learner the centre of the process has been gaining importance. This was first explored in the area of academic learning and then brought to corporate training. The current study provides support to the movement of training from facilitator centric to learner centric by linking the learner centric design to an intangible output of training-

self-efficacy. In addition, the study suggests a new approach to training. The proposed relationship between the learning techniques and self-efficacy suggests that in addition to the traditional training evaluation criteria, sessions must also be evaluated on the bases of the level of confidence that they instill.

While self-efficacy is an intangible, latent concept, its influence on performance and training transfer are well established in literature. The current study provides evidence for the relation between learner participation, learning environment and feedback with self-efficacy of the participants. The findings of the study suggest that increasing the levels of participation in the learning process and providing a positive interpersonal environment with constructive feedback at regular intervals would help in increasing the confidence of the learners.

VII. LIMITATIONS AND SCOPE FOR FUTURE RESEARCH

The current study comes with limitations. The primary limitation is that the study employed purposive sampling. This prevents the researchers from generalising the findings of the study. The second limitation is that the study is based on perceptions. Although this is an acceptable methodology and widely accepted, it is not as credible as experimental research or a pre and post test result. Lastly, characteristics of the learners have not been considered in this study. The personality characteristics of the learners may modify the relationship.

VIII. CONCLUSION

The current study focuses on the population of IT/ITES employees in India. The respondents were contacted via email and their responses to the prepared questionnaire were recorded and analysed. For the population, the use of Active Learning Training Design was found to improve participant training Self-efficacy. According to the study by [34], increased Self-efficacy would then increase motivation to transfer training to the actual workplace, thereby increasing training effectiveness.

The study also found that amongst the dimensions of an Active Learning design, Learner participation levels, learning environment and Feedback were found key in predicting the levels of Self-efficacy. This suggests that increased participation in the learning process and constructive, timely feedback provided in a positive learning environment would be key to increasing trainee confidence about their ability to transfer the learning to their workplace.

REFERENCES

1. Anon, (2019). Www2.deloitte.com. Retrieved 16 September 2019, from <https://www2.deloitte.com/content/dam/Deloitte/cz/Documents/human-capital/cz-hc-trends-reinvent-with-human-focus.pdf>
2. Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of social and clinical psychology*, 4(3), 359-373.
3. Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational psychologist*, 28(2), 117-148.
4. Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman

5. Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (2001). Self-efficacy beliefs as shapers of children's aspirations and career trajectories. *Child development*, 72(1), 187-206.
6. Bates, R., & Khasawneh, S. (2004). Organizational Learning Culture, Transfer Climate and Perceived Innovation in Jordan. Online Submission.
7. Bong, M. (2004). Academic motivation in self-efficacy, task value, achievement goal orientations, and attributional beliefs. *The Journal of Educational Research*, 97(6), 287-298.
8. Bonwell, C. C., & Eison, J. A. (1991). Active Learning: Creating Excitement in the Classroom. *ERIC Digest*.
9. Bransford, J. D., Brown, A. L., & Cocking, R. R. (1999). *How people learn*. Washington, DC: National Academy Press.
10. Bruner, J. S. (1966). *Toward a theory of instruction* (Vol. 59). Harvard University Press.
11. Caraway, K., Tucker, C. M., Reinke, W. M., & Hall, C. (2003). Self-efficacy, goal orientation, and fear of failure as predictors of school engagement in high school students. *Psychology in the Schools*, 40(4), 417-427.
12. Chemers, M. M., Hu, L. T., & Garcia, B. F. (2001). Academic self-efficacy and first year college student performance and adjustment. *Journal of Educational psychology*, 93(1), 55.
13. Chiaburu, D. S., & Lindsay, D. R. (2008). Can do or will do? The importance of self-efficacy and instrumentality for training transfer. *Human Resource Development International*, 11(2), 199-206.
14. Chiaburu, D. S., & Marinova, S. V. (2005). What predicts skill transfer? An exploratory study of goal orientation, training self-efficacy and organizational supports. *International journal of training and development*, 9(2), 110-123.
15. Choi, N. (2005). Self-efficacy and self-concept as predictors of college students' academic performance. *Psychology in the Schools*, 42(2), 197-205.
16. Comer, J. P. (1988). Educating poor minority children. *Scientific American*, 259(5), 42-49.
17. De Soto, C. B., Coleman, E. B., & Putnam, P. L. (1960). Predictions of sequences of successes and failures. *Journal of experimental psychology*, 59(1), 41.
18. Eison, J. (2010). Using active learning instructional strategies to create excitement and enhance learning.
19. Feather, N. T. (1963). Cognitive dissonance, sensitivity, and evaluation. *The Journal of Abnormal and Social Psychology*, 66(2), 157.
20. Feather, N. T. (1966). Effects of prior success and failure on expectations of success and subsequent performance. *Journal of personality and social psychology*, 3(3), 287.
21. Feather, N. T. (1968). Change in confidence following success or failure as a predictor of subsequent performance. *Journal of Personality and Social Psychology*, 9(1), 38.
22. Feather, N. T., & Saville, M. R. (1967). Effects of amount of prior success and failure on expectations of success and subsequent task performance. *Journal of Personality and Social Psychology*, 5(2), 226.
23. Frese, M., & Altmann, A. (1989). The treatment of errors in learning and training. Developing skills with information technology, 65.
24. Gist, M. E. (1986, August). The Effects of Self-Efficacy Training on Training Task Performance. In *Academy of Management Proceedings* (Vol. 1986, No. 1, pp. 250-254). Briarcliff Manor, NY 10510: Academy of Management.
25. Hake, R. R. (1998). Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. *American journal of Physics*, 66(1), 64-74.
26. Holton, J. A. (2007). The coding process and its challenges. In A. Bryant, & K. Charmaz (Eds.), *The Sage handbook of grounded theory*
27. Iran-Nejad, A. (1990). Active and dynamic self-regulation of learning processes. *Review of Educational Research*, 60(4), 573-602.
28. Ivancic, K., & Hesketh, B. (1995). Making the best of errors during +A1:A30 training. *Training Research Journal*, 1, 103-125.
29. Johnson, D., Johnson, R. and Smith, K. (1991), Cooperative Learning: Increasing College Faculty Instructional Productivity, *ASHE-ERIC Higher Education Report No. 4*, Washington, DC: The George Washington University.
30. Kao, G. Y. M., Lin, S. S., & Sun, C. T. (2008). Beyond sharing: Engaging students in cooperative and competitive active learning. *Journal of Educational Technology & Society*, 11(3), 82-96.
31. Knight, J. K., & Wood, W. B. (2005). Teaching more by lecturing less. *Cell biology education*, 4(4), 298-310.
32. Kolb, D. 1984 *Experiential Learning: Experience as the Source of Learning and Development*. Englewood Cliffs, NJ: Prentice Hall
33. Kramer, R.M., Pommerenke, P., & Newton, E. (1993). Effects of social identity and interpersonal accountability on negotiator decision making. *Journal of Conflict Resolution*, 37, 633-654.
34. Lee, C. D., & Kahnweiler, W. M. (2000). The effect of a mastery learning technique on the performance of a transfer of training task. *Performance Improvement Quarterly*, 13(3), 125-139.
35. Lemke, M., Sen, A., Pahlke, E., Partelow, L., Miller, D., Williams, T., ... & Jocelyn, L. (2004). International Outcomes of Learning in Mathematics Literacy and Problem Solving: PISA 2003 Results From the US Perspective. Highlights. *NCES 2005-003*. US Department of Education.
36. Levin, J., & Thurston, C. (1996). Educational electronic networks: A review of research and development. *Educational Leadership*, 54(3), 46-50.
37. Maddux, J. E., Sherer, M., & Rogers, R. W. (1982). Self-efficacy expectancy and outcome expectancy: Their relationship and their effects on behavioral intentions. *Cognitive Therapy and Research*, 6(2), 207-211.
38. Mayer, R. E. (2004). Should there be a three-strikes rule against pure discovery learning?. *American psychologist*, 59(1), 14.
39. Middendorf, J. & Kalish, A. (1996). The 'Change-Up' in Lectures. *National Teaching and Forum*, January 2006, 5(2)
40. Mills-Jones, A. (1999, December). Active learning in IS education: Choosing effective strategies for teaching large classes in higher education. In *Proceedings of 10th Australasian Conference on Information Systems* (pp. 622-633).
41. Neal, A., & Hesketh, B. (1997). Episodic knowledge and implicit learning. *Psychonomic Bulletin & Review*, 4(1), 24-37.
42. Prince, M. (2004). Does active learning work? A review of the research. *Journal of engineering education*, 93(3), 223-231.
43. Salas, E., & Cannon-Bowers, J. A. (2001). The science of training: A decade of progress. *Annual review of psychology*, 52(1), 471-499.
44. Schwartz, D. L., & Bransford, J. D. (1998). A time for telling. *Cognition and instruction*, 16(4), 475-5223.
45. Skinner, B. F. (1990). *The behavior of organisms: An experimental analysis*. BF Skinner Foundation.
46. Smith, E. M., Ford, J. K., & Kozlowski, S. W. (1997). Building adaptive expertise: Implications for training design strategies.
47. Smith, L., Sinclair, K. E., & Chapman, E. S. (2002). Students' goals, self-efficacy, self-handicapping, and negative affective responses: An Australian senior school student study. *Contemporary educational psychology*, 27(3), 471-485.
48. Velada, R., Caetano, A., Michel, J. W., Lyons, B. D., & Kavanagh, M. J. (2007). The effects of training design, individual characteristics and work environment on transfer of training. *International Journal of Training and Development*, 11(4), 282-294.
49. Vrugt, A., Oort, F. J., & Zeeberg, C. (2002). Goal orientations, perceived self-efficacy and study results amongst beginners and advanced students. *British Journal of Educational Psychology*, 72(3), 385-397.
50. Walker, C. O., & Greene, B. A. (2009). The relations between student motivational beliefs and cognitive engagement in high school. *The Journal of Educational Research*, 102(6), 463-472.
51. Wigfield, A., & Eccles, J. S. (1992). The development of achievement task values: A theoretical analysis. *Developmental review*, 12(3), 265-310.
52. Zimmerman, B. J., & Kitsantas, A. (2005). Homework practices and academic achievement: The mediating role of self-efficacy and perceived responsibility beliefs. *Contemporary Educational Psychology*, 30(4), 397-417

AUTHORS PROFILE



Dr. Jain Mathew currently works at the Department of Management Studies, CHRIST (deemed to be university). Bangalore. His areas of interest include Human Resource Management, Organizational Behaviour and Finance.



Training

Rachana Mukherjee is currently working as a soft skills trainer. She has previously worked in academics and her areas of interest include Human Resource Development and



Impact of Active Learning Training Design on Self Efficacy Levels of Participants



Sridevi Nair is a Research Scholar at the Department of Management Studies, CHRIST (deemed to be university). Her areas of interest include Organizational Behaviour and Human Resource Management.