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Research Article

**A COHORT RESEARCH ON TRADITIONAL LECTURING AND
GAGNE'S NINE EVENTS OF INSTRUCTIONS TO ASSESS PRE
& POST-GAGNE'S MODEL OUTCOMES**¹Dr. Nakash Ahsan, ²Dr. Shahzad Shahid, ²Dr. Umair ul Hassan¹SIMS/Services Hospital Lahore²Mayo Hospital Lahore**Abstract:**

Background and Objective: Health education primarily relies on the medical education which greatly relied on the medical curriculum. One of many perspectives of Bloom's Taxonomy is curriculum development and knowledge is one of its pillars to transfer the information. Formal lecturing is one of the information transforming methods. Medical student's development through lectures is still a question but all over the world practice of lecture is very common.

We aimed in this research the incorporation and effectiveness of the nine instructional events of the Gagne's Model which elaborates the importance of use of Multimedia, PowerPoint presentations for the improvement of undergraduate paediatrics students.

Methods: Our research was a cohort research which was carried out at Mayo Hospital, Lahore (Pediatric Department) from October 2016 – September 2017. A total hundred students were selected through the non-probable consecutive technique of sampling. Lectures were delivered in non-Gagne method to students and they were asked to fill a questionnaire of multiple choice questions; whereas, same instructor delivered his lecture in the nine events of Gagne method and students were again asked to fill the questionnaire. Outcomes were analyzed on SPSS.

Results: The outcomes revealed that mean value of non-Gagne's marks was observed as 25.7 in the range of (9 – 57). Significant variations were observed through Independent Sample T-Test with P-value as (0.523) in both female and male students while being taught through non-Gagne's evaluation. Whereas, post-Gagne's total mean score was observed as (74.39 ± 24.9) in the range of (14 – 100). Significant variation was observed through paired T-Test with a P-value of (< 0.001) in both Non-Gagne and Post-Gagne marks as observed through a questionnaire. Female students were favoured in the significant variation of paired T-test with a P-value of (< 0.001).

Conclusion: It was revealed that instruction through Gagne's nine events is effective than the non-Gagne instructional method in order to improve the result of pediatric undergraduate medical students.

Keywords: Lecture, Gagne's Method, Bloom's Taxonomy and Pediatrics.

*** Corresponding author:**

Dr. Nakash Ahsan,
SIMS/Services Hospital,
Lahore

QR code



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INTRODUCTION:

Health education primarily relies on the medical education which greatly relied on the medical curriculum. New windows of teaching methods have been opened with the expansion in the number of medical institutes in the present practice of teaching [1]. One of many perspectives of Bloom's Taxonomy is curriculum development and knowledge is one of its pillars to transfer the information. Formal lecturing is one of the information transforming method [2, 3]. Formal lecturing is one of the information transforming methods. Medical student's development through lectures is still a question but all over the world practice of lecture is very common.

Traditionally, it is a practice that contents of the syllabus are presented in lectures, whereas students sit ideal and note down important points while sitting in the rows and columns. Sole authority is in the hands of the teachers and active; whereas, the students are passively involved in the process of learning [4]. The main issue lies in the gap between students and instructors as the session has no interactivity involved in it. This gap and separation has provided very interesting figures such as clinical practice is preferred over the lectures by 83% of the medical undergraduates in the medical institutes, over thirty minutes' concentration difficulties were reported by 92% of the medical undergraduates and very alarmingly 70% of lectures were even skipped because of their monotonous way of information dissemination [5].

In the said background medical educationists developed numerous instructional strategies in order to improve medical education. For the promotion of the educational strategies, structuring and material development these strategies were made to promote human resource development. Proved rules have been proposed by various authors about the learning theories and instructional strategies [7]. In this effort, an effort was also made by RM Gagne, who was a renowned American Psychologists [8]. Gagne named his method as "Nine Instructional Events" and considered a condition of learning and instruction with the help of internal and external stimuli. At present, no doubt lectures are still intact as they are

easy for the instructors to prepare and discuss idea especially in the short time when the syllabus is lengthy in Pakistan [5]. Emphasis has been put on the importance of the interactive teaching rather passive instructional modes as in practice. Time and resources are to be best utilized in the achievement of the instructional goals. Lectures are not that much effective and result oriented as they were considered before we declare the death of the lecture method we compared its effectiveness with the comparison of Gagne Nine Events of Instructional Model for interactive and active learning sessions. We aimed in this research the incorporation and effectiveness of the nine instructional events of the Gagne's Model which elaborates the importance of use of Multimedia, PowerPoint presentations for the improvement of undergraduate paediatrics students.

METHODS:

Our research was a cohort research which was carried out at Mayo Hospital, Lahore (Pediatric Department) from October 2016 – September 2017. A total hundred students were selected through the non-probable consecutive technique of sampling. Lectures were delivered in non-Gagne method to students and they were asked to fill a questionnaire of multiple choice questions; whereas, the same instructor delivered his lecture in the nine events of Gagne method and students were again asked to fill the questionnaire. Outcomes were analyzed on SPSS.

RESULTS:

The outcomes revealed that mean value of non-Gagne's marks was observed as 25.7 in the range of (9 – 57). Significant variations were observed through Independent Sample T-Test with P-value as (0.523) in both female and male students while being taught through non-Gagne's evaluation. Whereas, post-Gagne's total mean score was observed as (74.39 ± 24.9) in the range of (14 – 100). Significant variation was observed through paired T-Test with a P-value of (< 0.001) in both Non-Gagne and Post-Gagne marks as observed through questionnaire. Female students were favoured in the significant variation of paired T-test with P-value of (< 0.001). Detailed outcomes analysis has been made in the given tabular data.

Table – I: Outcomes Analysis

Outcomes	Number	Mean	SD	Minimum	Maximum
Non Gagne's	100	25.79	12.918	9	57
Post Gagne's	100	74.39	24.922	14	100

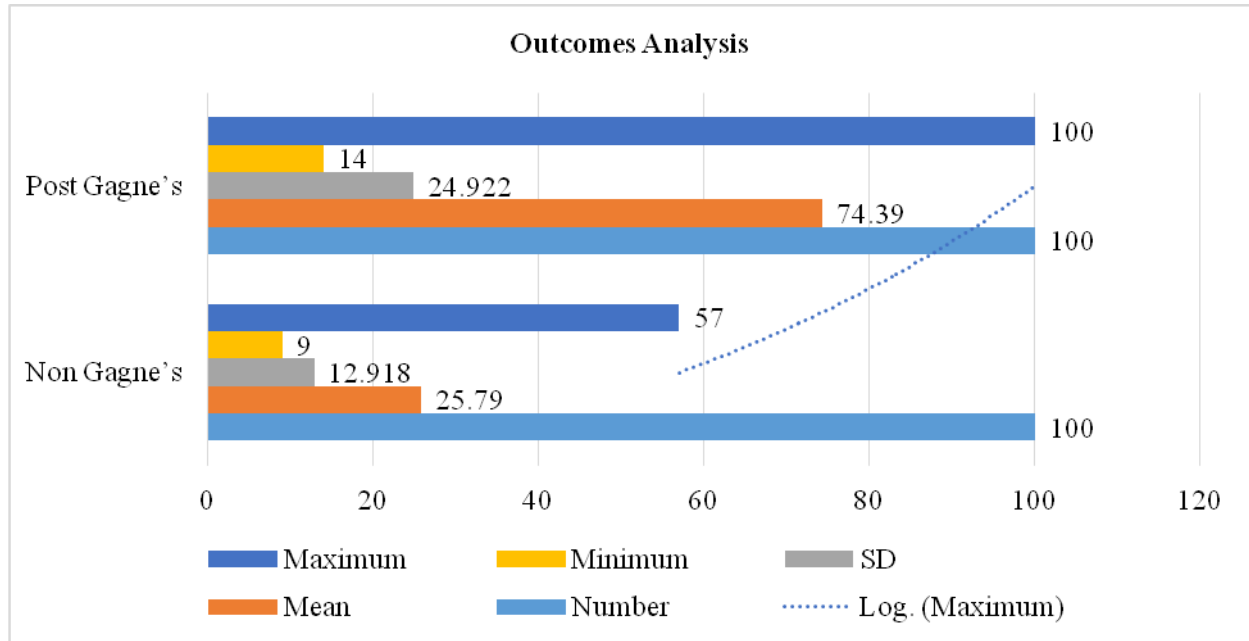


Table – II: Statistics of the Paired Samples

Mark	Number	Mean	SD	P-Value
No Gagne's	100	25.79	12.918	<0.001
Post Gagne's	100	74.39	24.922	

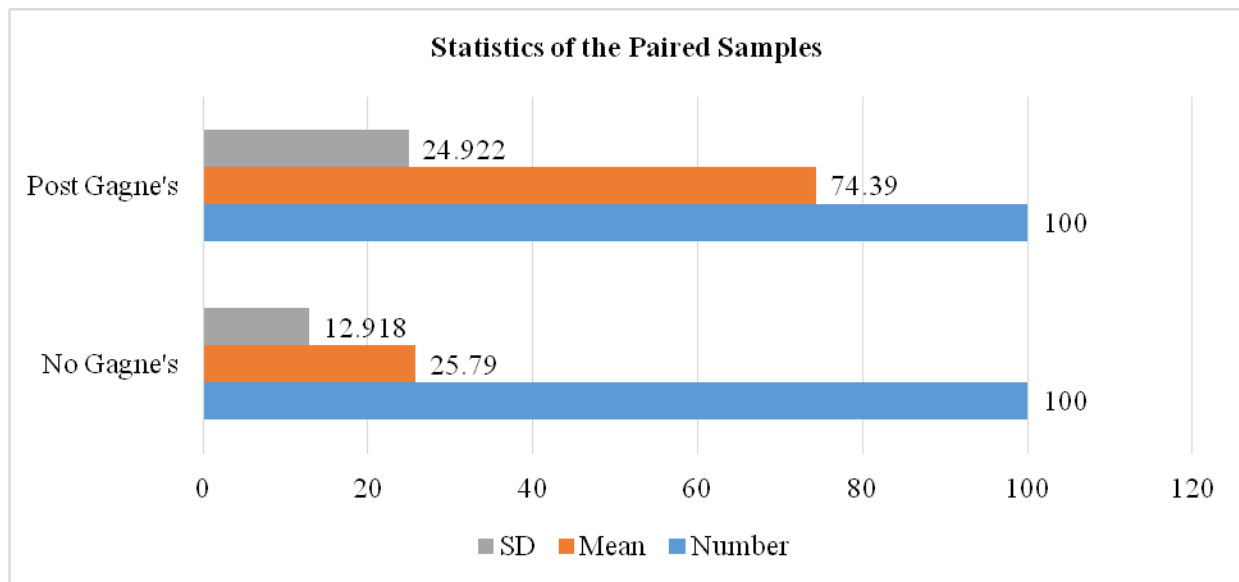


Table – III: Independent Sample T-Test

Mark	Gender	Number	Mean	SD	P-Value
No Gagne's	Male	44	26.73	14.172	0.523
	Female	56	25.05	11.92	
Post Gagne's	Male	44	66.48	28.826	0.004
	Female	56	80.61	19.465	

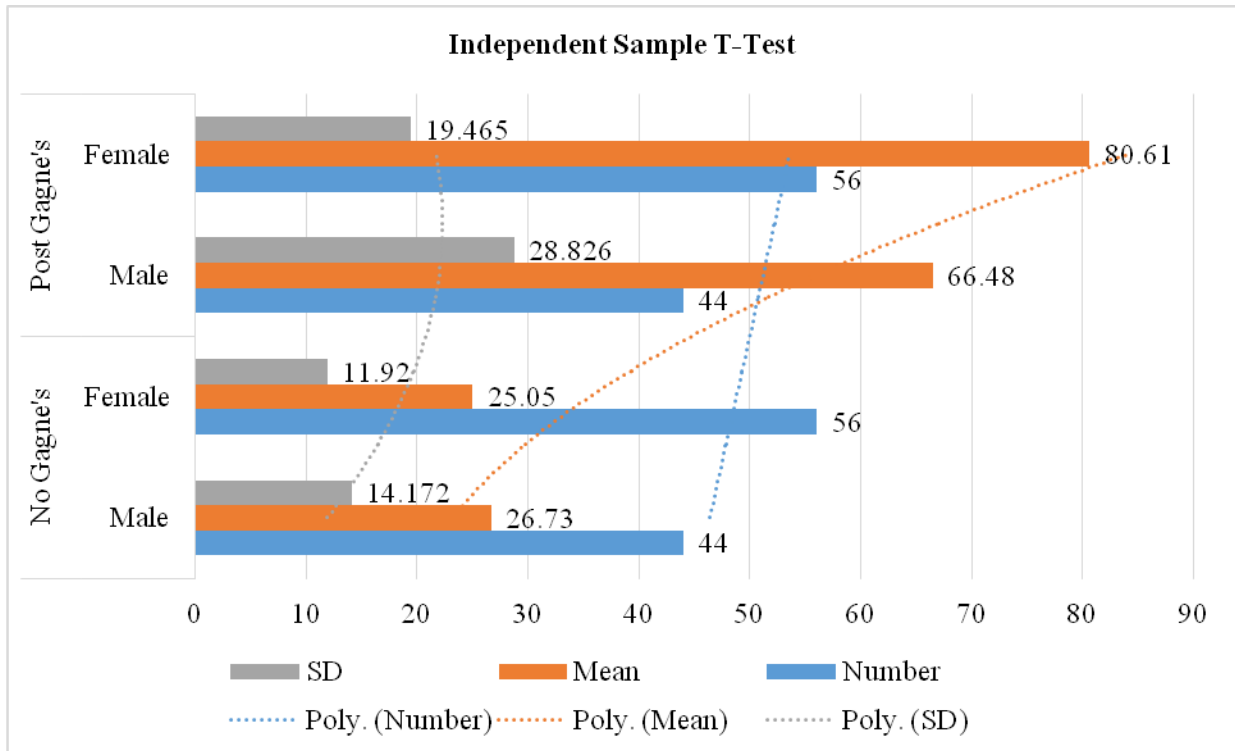


Table – IV: Male's Paired T-Test of Independent Variable

Mark	Number	Mean	SD	P-Value
No Gagne's	44	26.73	14.172	<0.001
Post Gagne's	44	66.48	28.826	

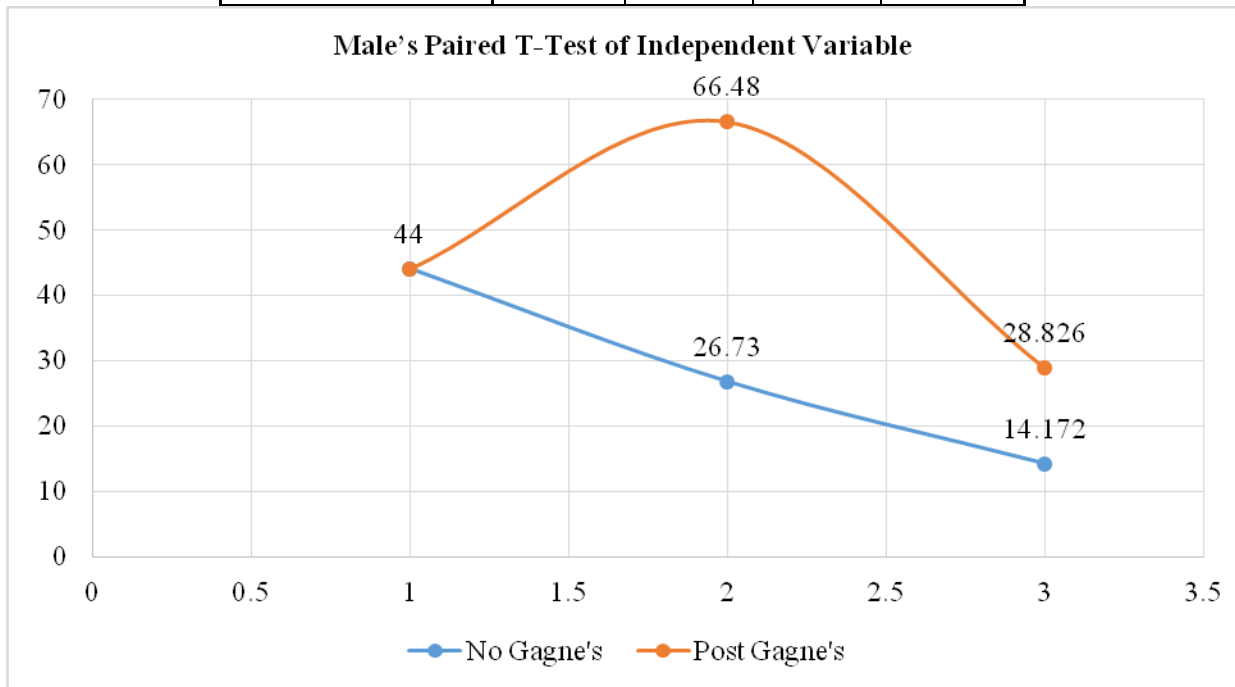
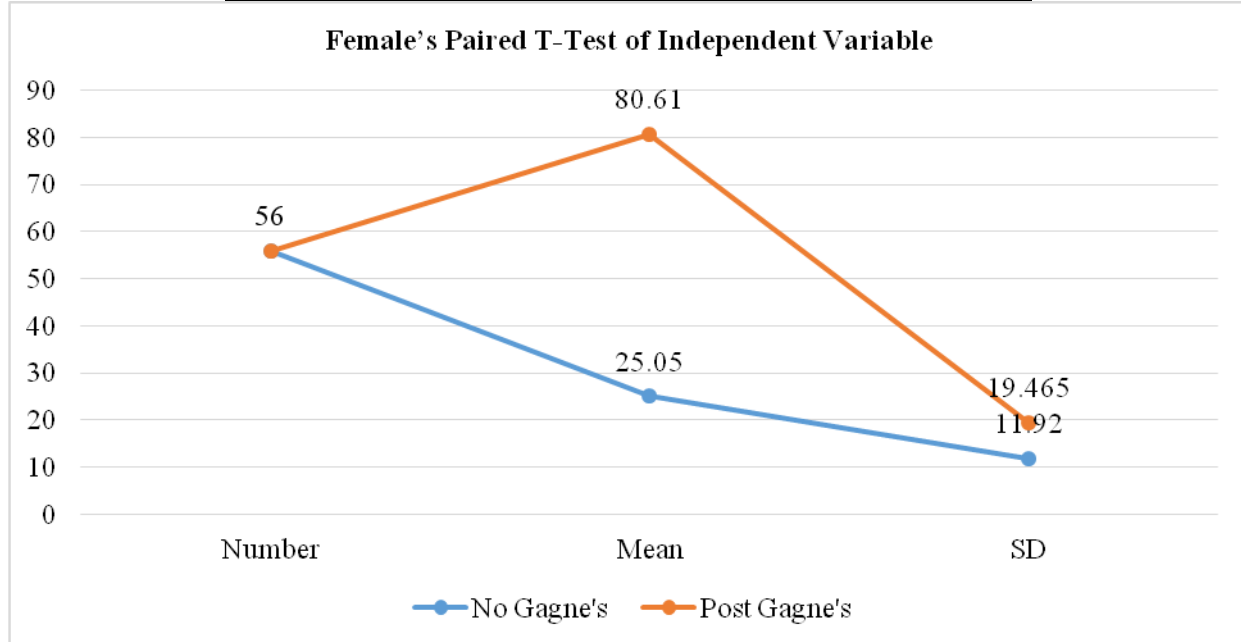


Table – V: Female's Paired T-Test of Independent Variable

Mark	Number	Mean	SD	P-Value
No Gagne's	56	25.05	11.92	<0.001
Post Gagne's	56	80.61	19.465	



DISCUSSION:

It has been universally accepted by the medical educationists that lecture is devoid of interest, concepts and terms. Passive teaching has been reformed by new interactive strategies and lecture is replaced by more sequential, student-oriented and systematic instruction. Clear concept attainment can be gained through new instructional methods especially including Gagne nine instructional events [8].

Attention has been secured for the nine instructional events of Gagne Model. It helps in the objective settlement, attainment, prerequisite learning stimulation, stimulus material presentation, learning guidelines, performance measurement, feedback loop completion, performance assessment, increased transfer and retention. Organization of the material is also considered as a hallmark by Gagne [8, 9].

Our research is significant as it is first of its own nature that probed in the instructional strategy of the medical undergraduate and compares traditional and modern instructional methods. Enhanced performance was noticed through outcomes analysis in the pre and post-Gagne questionnaire filling by the medical undergraduates. Our outcomes have also

been endorsed by Roopa and Belfield in their subject teaching [10, 11]. Three back to back nursing sessions were also assessed by Miner in his research and he published the effectiveness of Gagne model's effectiveness in the teaching of medical science [12]. With the incorporation of the Gagne's Model significant improvement was noticed in the student's overall learning and grade. Curriculum needs instructional model change for its optimum benefit, which is comparable with our research outcomes. Both the methods were assessed through a questionnaire which was given before and after Gagne's incorporation and visible outcomes were observed in the favour of Gagne's model incorporation which used PowerPoint presentation and ICT (Information and Communication Technologies); our outcomes are also in accordance with the said literature [10 – 12]. This new approach adopted by Gagne is applicable for both theory and practise and to be implemented for the development of psychomotor faculty. Clinically haematology and bone marrow concepts have been effectively taught by Buscombe with the help of Gagne's model [13]. Another author has practised ascetic tap skills through clinical gastroenterology [14]. Effective and systematic learning can better be accomplished through Gagne's model which provides structures

planning of a lesson in which a basic teaching unit, it also provides a holistic view as well.

Students need to remember what they have been taught and understand the concepts but above all is the application and analytic view of the learned concepts. Objectives need more solid and sound structuring for better lesson delivery. The ultimate goals relied on the learning of the students at the end of the learning sessions. Pedagogical and anagogical approaches have been modernized and classrooms are not the same as they were. Outcomes also reflect the improvement as Non-Gagne mark was observed as 25.7 and Gagne's application was observed as 75.9. These outcomes are also comparable with the world literature [12 – 15].

This research is applicable to all the post and undergraduate programs and especially for their instructional staff in order to raise the medical teaching standards anew. In our research knowledge domain was assessed which is in the lower order thinking levels of Bloom's Taxonomy. Further research work can be made in order to assess the outcomes on higher order thinking levels as mentioned in the Bloom's Taxonomy to verify the validity of Gagne's Model in the learning attitude of medical disciplines.

CONCLUSION:

It was revealed that instruction through Gagne's nine events is effective than the non-Gagne instructional method in order to improve the result of pediatric undergraduate medical students.

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