

Application of Constructivism, Gagne's 9 Events of Learning and Formative Assessment for Teaching Economics in a Government College of Bangladesh

Dr. S M Atiar Rahman

Assistant Professor, Department of Economics
Meherpur Government Mahila College, Meherpur.
Email:prioatiar@gmail.com

Abstract: This study aims to apply three core concepts from curriculum, learning and assessment to prepare lesson plans for effective learning and observe its effects on students learning following explanatory sequential mixed research design. It follows a convenient sampling method. Target population of this study represents 2nd year students. 26 honors second year students were the participants of this study. Data were collected through a survey questionnaire and interview schedule. Collected data were analyzed through SPSS and thematic coding. The results of the study showed that the teacher's effectiveness, student's perceptions, teaching styles and assessment styles were impressive. The study will be helpful for educators and policy makers to know more about theory-based effective lesson plans, manage classes effectively and ensure quality learning in the classroom.

Keywords: Constructivism, Gagne's 9 events of learning, Formative assessment, Lesson plan

Introduction

This paper aims to apply and assess the impact of three theoretical ideas namely constructivism, Gagne's nine events of learning and formative assessment in making effective lesson plans and implementing on the honors second year students at a government Girls' college in Bangladesh to teach Intermediate Macroeconomics. The effective lesson plan is labeled as 'the hidden world of teaching' (Saad, 2011) or 'quality improvement activity' (Shen, Poppink, Cui & Fan, 2007) that guides the teacher to utilize the available time, resources, materials, and techniques at an optimum level. We know that curriculum deals with what students should learn, learning deals with how students should learn, and assessment gives us information on whether students learn anything in the process of education (UNMC, 2018). These three terms are highly interrelated and lie at the heart of education at any subject and any level.

However, in Bangladesh, these three components are considered independently and there are no linking procedures of these terms to enhance the process of learning. In most cases, classroom activities are run by traditional teacher-centered lecture-based methods without any lesson plan where the students' role is passive and that of teachers are dominant. So, students' learning and participation processes are hampered.

To overcome this poor classroom management and performance, some effective lesson plans describing learning objectives, lesson steps, lesson's development and ending based on three key theoretical ideas namely- constructivism, Gagne's 9 events of learning and formative assessment are prepared. Thus, the study is very important for Economics teachers to increase their teaching quality and experiences by incorporating appropriate learning and assessment techniques. It is also very helpful and crucial for students as it provides strong evidence to them on how to increase their engagement and participation in learning activities and have enhanced learning outcomes. Since there is a strong alignment among curriculum, learning, and assessment. Therefore, a collaborative approach is taken to prepare a lesson plan by infusing these three core concepts.

To prepare an effective lesson plan to ensure true learning for the students in the classroom, educators consider different pedagogical concepts. This study consciously chooses three concepts from curriculum, learning and assessment-constructivism (Under constructive teaching learning method, pair discussion, collaborative learning group work, role play, scaffolding and cooperative learning are applied for this study), Gagne's 9 events of learning and formative assessment (Among different forms of formative assessment, quiz, in-class questioning, instant practice and oral feedback are applied for this study). A brief description of these three core concepts is given below.

Constructivism

Psychologists are continuously researching to find out the ways how a learner learns or how they should learn. In that process, we are able to know the Constructivist learning theory. The term constructivism comes from the English word 'construct' that originates from the Latin word 'constrvere' which means to rearrange or to structure (NCTB, 2012). So, the main essence of the constructivist theory is to form and internalize ideas or construct knowledge that are/is regarded as learning. The process of learning occurs as we construct and change the knowledge and thinking process in every moment with our sense, language and experience and surrounding environment (Matter, 2018) and we become engaged and active learners using the process of *accommodation* (the process whereby the conceptual frameworks are adjusted in the light of new information), *assimilation* (the process whereby new information is incorporated into existing frameworks) and *equilibration* (UNMC, 2018). When a learner faces something new, s/he verifies that with his/her previous understanding and familiarity. At the time of receiving the new concepts if the learner finds that irrelevant s/he cancels the concepts otherwise, s/he gains knowledge from the concepts. In this case, Trianto (2013) rightly mentioned that learners have to search for their own necessary information and change the complicated facts, check the fresh ideas with the old ones and review them if the ideas are no longer suitable.

Rationale for Choosing Constructivism

Learning theories are very important for educational pedagogy and philosophy. Learning theories are abstract frameworks that are used to describe how ideas and information are accepted, accomplished, and conceived during learning processes.

Constructivism says that a learner can learn when s/he actively takes part in the learning process, thus, conceiving the contents and constructing their knowledge and meaning based on previous knowledge, surrounding environment, language skills, socialization process, cooperation, engagement, interactions, and involvement into the learning process.

In a constructivist learning environment, a *learner* can develop questions, construct knowledge, apply concepts in daily life, identify issues, share own ideas, create own answers, test, and challenge hypotheses, use data, connect, interact, involve in the real-world situation and reflect on ideas. Through this process, s/he becomes an independent thinker, problem solver, discussant, analyst, and responsible learner. They work in groups. Constructivism inspires learners to exercise top-level thinking skills (encouraging Bloom's Taxonomy).

Under constructivism, a *teacher* can accommodate different learning styles, develop lifelong learners, have the opportunity to pursue interests and make decisions and can build open and trust-based relationships with the learner, thus becoming an observer, diagnostician, and facilitator of student's learning. They usually behave cooperatively, facilitating the environment for students. Therefore, the role of a teacher in constructivism is to help the learner to construct new ideas, not just provide different theories and information to the learners.

There are two different processes of realizing learning. They are- an external communication process between the student and his/her environment and an inner mental process of expansion and acquisition. Behaviorism and cognitivism focus only on internal psychological processes, whereas constructivism focuses on both processes (Illeris, 2009). That is why constructivist learning theories are introduced in the lesson plan of this study.

Critical Discussion on Constructivism

In constructivism, students participate very actively in the learning environment, and they know how to involve themselves in the learning process. It increases their metacognitive domains along with the affective and psychomotor domains. Learners have a great association with the content and the environment in what and where they are acquiring knowledge. It improves the learner's socialization capacity. Here, they are not considered as a blank box to be filled in rather they are treated as growing ones. Constructivism inspires higher order thinking, and it increases the confidence of the students as it promotes self-controlling power and boosts the diversity of thoughts.

However, constructivism requires some solid foundation of prior knowledge on which we can build or incorporate something new. It requires learners' maturity. Students should have some minimum amount of self-management capacity. Learning may be hampered for distracted learners and all learners may not have the same level of schema and thinking skills. Teachers should have a solid foundation on child psychology. It poses some difficulties for the teachers and requires a lot of pre-planning for them. It is a time-consuming instructional process.

Examples that Promote Constructivism

Previous literatures (Kurt, 2021; Levitt & Adelman, 2010; Palmer, Harshbarger & Koch 2001, Kaddoura, 2013; Alzahrani & Woollard, 2013; Karacop, 2017) reveal that constructivist learning is promoted following learning strategies: Role playing or active story telling; Learning Groups; Workshops; Internships; Collaborative learning; Cooperative learning; Field trips; Inquiry and discovery based learning; Hands on training; Problem based learning; Jigsaw classroom; Designed based exercises; Case studies; Project works; Personal response system; Think-pair-share; Real time use of ICT; Public response system; Metacognition and reflection; Open ended questions; Brainstorming on possible alternatives; Self-directed learning; Learning by doing; Social learning; Interactive Learning and Integrated learning.

Gagne's 9 events of learning

Robert Gagne (1916-2002) is an American Education Psychologist, exceptional contributor to structured instructional design, a great writer and thinker and a very innovative figure in the area of teaching and learning (Ngussa, 2014). After synthesizing the theory of behaviorism and cognitivism, he assumes that learning is the change in human behavior that happens in the human brain. In the influential book named 'Conditions of Learning' Gagne proposes a sequential condition of learning and proposes nine steps of learning that incorporate both the internal and external aspects of learning. Those steps start from generating learner attention through the stimulus to preparing the learner to solve new problems. His nine levels of learning offer a phase- by-phase checklists that helps one ensure that he presents comprehensive and successful learning experiences. Gagne's 9 steps (Wong, 2018) can be mentioned as: (i) Gaining attention; (ii) Informing the learner of the objectives; (iii) Stimulating recall of prerequisite learning; (iv) Presenting the stimulus material; (v) Providing learning guidance; (vi) Eliciting the performance; (vii) Providing feedback about performance correctness; (viii) Assessing the performance; and (ix) Enhancing retention and transfer.

Rationale for Choosing Gagne's steps

Gagne's nine steps of learning are chosen for preparing lesson plans for this study. Gagne's nine steps of the instructional model is a comprehensive one as it includes all types of learning outcomes addressed by instructions. It combines external instructions with the learner's internal cognitive learning process and memory. By following the steps, a learner is able to know 'how to learn'. In

designing instruction, it considers the learner's characteristics in terms of individual diversity, learner's readiness, and motivation to learn. Gagne advocates such an instruction process of learning that starts from the simple step of gaining attention to the complex enhancing retention and transfer. So, the learner has to gradually improve his capability to learn from one step to the next one.

Critical Discussion on Gagne's 9 events

Gagne's 9 events of learning are widely used by educators. Miner et al., (2015) use Gagne's 9 events of instruction into a nursing course over 3 semesters and find the mean grade of the students improved significantly and suggest that the 9 events of learning may be introduced in both synchronous and asynchronous online nursing courses.

Neo, Neo, & Teoh, (2010) combine Gagne's nine steps of learning in a multimedia enhanced learner-centered learning environment to see its impact on students' learning by gathering the data through surveys and questionnaires and find positive and encouraging results. The learners are motivated and active in pursuing their learning in a self-directed way.

Ullah, Rehman, & Bibi (2015) try to find out the effect of using Gagne's 9 events of instruction in teaching radiology and imaging in a medical institute over the period of May 2014 to September 2014 consisting of two phases and 8 lectures. They find improved performance of the teachers and increased learners' approval rate which suggest better understanding and higher retention of knowledge of the students.

Formative Assessment

Formative assessment is a process of continuous monitoring and evaluation of learners' progress at the time delivering lectures in a classroom and providing actionable, effective, and corrective feedback accordingly so that learners can achieve learning objectives. It is a continuous process that happens every day at the time of instructions through which teachers can identify their students' strengths and weaknesses and provide corrective measures to adjust ongoing teaching learning activities and prepare them for the final examination. Formative assessment is regarded as assessment for learning (Voinea, 2018).

Rationale for Formative Assessment

Through formative assessment teachers can identify their students' weaknesses and provide corrective and effective feedback on how to improve instantaneously (Havnes et al., 2012). They can observe their students' practical and classroom activities, affective domain, especially their personal and social behavior, attitude, and values, assess their performance, and give instructions and guidance accordingly (Moss & Brookhart, 2019). They can involve their students actively in their assessment process and work together to improve the level of learning. They can adjust my teaching styles to teach the learning goals effectively.

It's a continuous process through which teachers can increase their student's motivation. Through the process of formative assessment, teachers can measure the skills of listening, speaking, and reading within a short period of time at a low cost and suggest to them some corrective feedback on how to improve those skills gradually. It enables a learner to be self-regulated and autonomous with the help of peers and teachers where s/he can take responsibility for his/her learning.

Critical Discussion

Educators should introduce that type of assessment which promotes the pace of learning. In this regard, formative assessment can play the leading role in which learners can achieve the learning objectives. Instruments that are used in formative assessment include guided reading, guided discussion, fill-out the document, peer and self-assessment, writing, quiz, in class observation, Socratic question, practical work, hands on training, brainstorming etc. RHODE Island Schools (2016) in collaboration with the U.S department of education identifies the following critical elements in formative assessment lesson planning; big idea, learning goals, success criteria, and learning progressions.

Hansen, & Ringdal (2018) use mixed methodology incorporating three complementary data-analytic approaches, focus group interviews and seven doctrines of good response practice in a formative assessment practice to examine the achievement goal pattern and stability of the students. They suggest that feedback should be used as a learning tool in ongoing assessment practice. Students' achievement-goal patterns may be attained through the understanding of feedback and formative assessment in higher education.

Tridane et al., (2015) use a questionnaire method to measure the impact of ongoing assessment on education and the untrustworthiness of the mark for the summative assessment over 250 students. They conclude that formative assessment helps the teacher to anticipate and fill the gaps of students and the method of the learning process and may not attain the level of learning.

Fuller & Dawson (2017) integrate technology and implement student response systems for the formative assessment using the Observation Cycle of Danielson's, Level of Professional Development Evaluation Model of Guskey and the Professional Development Design of Desiemone. They identify that teachers can use technology and associated professional development strategies to assess students formatively and correct and adjust their teaching strategies in the classroom.

Hegazy & Barton (2017) review the literature on formative assessment comprehensively and find that there are some important models on formative assessment such as Centre for Educational Research and Innovation model of OECD (2005) with six key elements for formative assessment, William, and Thomson (2008) moments of contingency model of formative assessment consisting of five key practices and Heritage's (2010) formative assessment

model with six guiding principles for formative assessment. After discussing the models of formative assessment, they propose a formative assessment practice for adolescents with six guiding principles.

General observation and reflection of researchers provides a scenario of a classroom where a teacher in Bangladesh conducts class by following a lecture-based method with a duration of fifty minutes where s/he is the supreme spokesperson in the class in providing all types of information to my students and they are merely passive listeners. This method is also known as chalk-and-talk method i.e., only teacher writes, and teacher speaks or Jug-and-mug method i.e., teacher acts like a jug to just give water into a mug but never from mug to jug. That is why it becomes very tough for the teacher to draw their attention to my lecture. As students have very little engagement in the classroom activities, they find the class boring and in lieu of giving proper attention in the class they become diverted, involved in operating mobile phones, gossiping with each other, they do not feel any interest in the lecture as if it becomes very unattractive to them.

Actually, the teacher is a sailor in a boat without a rudder, i.e., does not have any scope to reach the target. Very often, s/he failed to stay on track to teach the specific concepts. Because the researcher did not use any lesson plans to conduct a class. He does not even know how to make an effective lesson plan and how to improve those plans by incorporating the basic theories and concepts of curriculum, learning and assessment. The researcher rarely applied any techniques such as peer and group learning, cooperative and collective learning to enhance the engagement of his students in the learning process where they can have the autonomy and control of their own learning.

The prime intention of a teacher in conducting class in Bangladesh is to prepare his students for the summative assessment that occurred at the end or middle of the year by providing some suggestions from the syllabus on what to read and what to skip to do well in the examination. Students just follow the teacher's instructions and memorize those questions for the examination. So, the gradual development of student's performance in all aspects was absent in the class. Actually, the overall scenario of the teaching learning activities was very frustrating for the researcher and for his students.

So far, our knowledge goes, the effective use of lessons incorporating pedagogical concepts is new to Bangladesh. Here most of the teachers in all levels basically follow a teacher centered approach to teach their subjects. Though there are some researches in Bangladesh that incorporate some pedagogical concepts to prepare lesson plan (Al Faruki, Haque and Islam, 2019; Hasan, 2020; Iqbal, Siddiqie, & Mazid, 2021) and apply those in classroom, they mostly focus on different issues like scaffolding, student centered approach and survey based econometric analysis. They also chose a graduate level college that jointly teaches both boys and girls in graduate and undergraduate level.

However, the researcher doesn't find any study that focuses on graduate level girls education. This creates a gap in the educational research in Bangladesh. This study proceeds with the following research questions:

What is the implication of applying a lesson plan considering pedagogical concepts to Teach the Intermediate Microeconomics Course in a Government Girls College in Bangladesh?

In order to address the research question, the study focuses on applying three pedagogical concepts namely constructivism, Gagne's 9 events of learning and formative assessment to the students of honors second year of government girls college of Bangladesh. The purpose of this study was to explore and reflect the effect of preparing and implementing effective lesson plans incorporating three pedagogical concepts as a teaching-learning strategy on the honours 2nd year Economics Students. The study sheds light to-

- a brief description of 3 pedagogical concepts that are used to prepare lesson plans for effective learning.
- The process of preparing effective lesson plans given in details in Appendix A.
- Methodological issues and
- Findings of the study
- Discussion and
- Strengths and weaknesses of the new approach.

Methods and Methodology

This study is exploratory in nature. It explores the reflection of the outcomes of some lesson plans that have been prepared on the basis of some key theoretical ideas of curriculum, learning and assessment. It follows an explanatory sequential mixed research method-thus, applying quantitative approach first and then qualitative approach to explain the results of quantitative approach. Convenient sampling technique is used. Data for this study is collected from the primary sources which is collected from survey data and interview schedule. Students are asked to fill out a 5-point Likert scale survey questionnaire (Appendix B) to evaluate the course, teacher, and teaching techniques after participating in the class that is conducted on the basis of a structured lesson plan (Appendix A). A lesson plan is a written document of a teacher on how to impart the lesson in front of the students in order to obtain the intended learning outcomes within the stipulated time. Although teaching is regarded as an art, a teacher should have a lesson plan so that s/he would be on the right track, thus, delivering lectures on the basis of learning goals, making the lesson attractive, delightful, easy, and sustainable and increasing the confidence of the teacher and the learner. Lesson outlines in this paper are prepared in considering the three key theoretical ideas namely – constructivism, Gagne's 9 events of learning and formative assessment.

The duration of the class based on the lesson plan is 60 minutes. The Beginning section needs 10 minutes, the development section requires 40 minutes, and the Closure section is conducted within 10 minutes.

Regarding the qualitative method, the researcher interviews the students and critically observes and reflects on the activities during the class time by concentrating on their participation, engagement, result, and feedback.

Before collecting the data, the researcher discussed with his students his plan on conducting my classes on the basis of his prepared lesson plan. He gave them a consent form and they signed that form. Then, he conducted four effective classes based on lesson plans. After that, he provided the questionnaire to every student in my class to fill in. Researchers helped them to understand the questions by translating them in Bangla so that they can fill in the questions after internalizing the ideas and questions. I have interviewed my students on the basis of the semi-structured questionnaire given in Appendix C.

After collecting the survey data from the students, researchers analyzed that through SPSS to estimate the achievement of the structured lesson outcomes through the four lesson plans, researchers have set 21 statements that were evaluated in 5-point Likert scale measurement. Researchers categorized those statements in four broad heading namely, my teaching effectiveness, student's perception, teaching style and assessment style. In analyzing the questionnaires that are filled up by my students after conducting four classes on the basis of prepared lesson plans, the researcher estimates descriptive statistics and frequency tables and finds that most of my students either agree or strongly agree with the propositions that are given in the questionnaire. Semi-structured Interview data are coded, analyzed, and explained to reveal the effectiveness of the new teaching technique.

Results

After applying the structured lesson plans, results and findings are incorporated in this section. Therefore, this section gives the description of the achievement of lesson outcomes from the made lesson plans. It also includes personal observation of the class, trends of students' feedback and assessment results. Researchers have prepared and implemented four lesson plans and found very positive and encouraging results. The students were very enthusiastic and eager to learn and participate in their lesson, and they participated in such a way that almost all the learning objectives were attained by them in the classroom. It was possible as a result of the structured lesson plan which made them very active in the classroom activities and helped them to take responsibility for their own learning. At the time of implementing the first lesson plan, the researcher observed that some of my students were too shy to share and demonstrate their ideas in front of me and with a pair. But gradually, the situation improved significantly, as researchers noticed most of the students were learning in cooperative and collective ways.

On the basis of the questionnaire that researcher has prepared for the ethics approval form, he got the following results:

As the researcher is a teacher at a Government Girls College, all of the students in his class are female students. Out of 26 students 18 students belong to 18-20 years of age and the rest 8 students belong to the age group of 21-23 years.

Criteria	Frequency (percentage)					Mean Score
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Teacher's effectiveness						
1. Teachers' preparedness in terms of preparing lesson plans, updated knowledge, and demonstration capacity was excellent.	0	0	0	0	100	5.00
2. The level of knowledge of the subject matter of consumer behavior at the start of the class was poor.	0	0	0	0	100	5.00
3. The level of knowledge of the subject matter of the course increased at the end of the class.	0	0	0	0	100	5.00
4. My teacher draws our attention, states the objectives of every day's and recall previous day's learning at the beginning of the class	0	0	0	3.8	96.2	4.96
5. My teacher presents different information, provides guidelines, and practices at the class.	0	0	0	46.2	53.8	4.54
Student's Perception						
6. I am happy with the knowledge gained throughout the class	0	0	0	15.4	84.6	4.85
7. I feel I achieved the desired learning outcomes from the class.	0	0	0	30.8	69.2	4.69

8. Teacher uses of various teaching aids and technology.	0	3.8	30.8	61.5	3.8	3.65
Teaching Styles						
9. Our class stays busy and does not waste time.	0	0	0	53.8	46.2	4.46
10. My teacher explains another way if we do not understand something.	0	0	0	3.8	96.2	4.96
11. My teacher checks to make sure we understand what he is teaching us.	0	0	0	15.4	84.6	4.85
12. My teacher takes time to summarize what we learn each day.	0	0	0	3.8	96.2	4.96
13. My teacher wants us to improve our thinking skills.	0	0	0	7.7	92.3	4.92
14. My teacher helps to set goals for our learning and keep track of our progress.	0	0	0	26.9	73.1	5.00
Assessment Styles						
15 My teacher assigns homework that helps me to learn.	0	0	0	30.8	69.2	4.96
16 When my teacher assesses my work, he writes on my paper to help me understand.	0	3.8	3.8	73.1	19.2	4.08
17 My teacher treats students with respect	0	0	0	7.7	92.3	4.92
18 My teacher is tolerant of different opinions expressed in class.	0	0	0	3.8	96.2	4.96
19 My teacher effectively encourages students to participate, ask questions and give answers.	0	0	0	0	100	5.00

20 My teacher provides clear constructive feedback.	0	0	0	15.4	84.6	4.85
21 My teacher assesses our performance at every step of our learning.	0	0	11.5	73.1	15.4	4.04

In a five-point Likert Scale questionnaire, in most of the cases, we found the mean values of each statement ranging from 4.60 to 5.00. It implies that the new, innovative teaching practices have a significant impact on my students' perception and performances. They strongly agree about the statement relating to the teacher's effectiveness, new teaching, and assessment style. Relative frequency data about the statements relating new theory-based teaching-learning also support the proposition. However, in the case of using various teaching aids and technology, we found the mean score as 3.65 where 30.8 percent of students remained neutral, and 3.8 percent disagreed. It indicates that students are not satisfied with the teaching aids that were used in their classroom. There were serious deficiencies of different types of educational materials and aids. Researchers could only use a multimedia projector without any internet connections.

Again, in deciding with the proposition on 'when my teacher assesses my work, he writes on my paper to help me understand' and 'my teacher assesses our performance at every step of our learning' we found the mean score as 4.04. In this case, relative frequency shows that they remain neutral, agree, and strongly agree with the statements.

Some open-ended questions were set to know the impact of the lesson plan on students. In synthesizing the answers to those questions, researchers found that the students considered the inclusive, active, and participatory type step by step teaching style as the best part of the classes. One of his students wrote, "*It is a very good system, as I can participate in the learning process and discuss and prepare my lesson in the classroom*". In identifying the worst part was that all have to have some minimum amount of knowledge in actively participating in the classes. Many students do not have the quality. A student utters, "*Sir, it is a good system, but we do not have enough preparation and practice to actively participate in a class, I feel very uneasy to represent a group in front of others*". The strongest part of the researcher's teaching they identified was that he was well prepared about the lesson objectives, making them engaged in the learning process. They suggested that they should have all classes following this type of structured lesson plan. All of my students confess that they participate more actively in the learning process than the previous teaching practices.

The researcher has conducted an interview with my students regarding lesson plans, traditional teaching practices and formative assessment to know their thought

process. They confess that they have not heard about lesson plans before and never participated actively in a structured lesson plan-based class. One of my students states, *"Sir, this system is very fine, as we all know what to do at the beginning of the class, can participate, share, ask questions, get instant feedback, and utilize and enjoy every moment of the class. But in the lecture method, we just hear your lesson by sitting in front of you silently"*. They also say that lesson plan-based student-centered teaching style is far better than the traditional lecture-based method. They like to be assessed in a formative assessment context because they can identify their weakness and get immediate and corrective feedback from me.

Discussion

This study aims to show the effects of applying lesson plans on economics students in a Government Girls' College in Bangladesh. It follows an explanatory mixed research design. The findings of the research show that the application of lesson plans incorporating the theoretical concepts from curriculum, learning and assessment have a significant effect on students' learning. A quantitative survey was done after conducting the classes following structured lesson plans. From that survey, it is known that teachers' effectiveness, new teaching styles and assessment styles were very effective. This finding resonates with that of Hasan (2020) who found that the outcome of the lesson plans was effective. Students' perceptions of this new teaching learning techniques were impressive. This finding also corroborates with the findings of (Iqbal, Siddiqui and Majid, 2021). However, in terms of using different teaching aids and sitting arrangement in the classroom, students were not so satisfied.

The researcher's personal observations and reflections on the new teaching technique and students' engagement was very encouraging. As stated earlier, researchers previously conducted classes following a teacher-centered approach and without having any structured theory-based lesson plans. However, when theory-based lesson plans were formed and classes were conducted accordingly, the scenario of the class-room environment changed dramatically. It made the classroom environment more active, delightful, and effective.

It was also observed that student's' class attendance and concentration to learn the lessons has increased as a result of conducting classes based on lesson plans.

The researcher was well prepared and had good confidence in himself on how to make his class most effective and make students involved in the learning process. So, students also found keen interest in lectures and gave full and proper attention and participated actively in every step of the lecture. The duration of the class was sixty minutes, but everybody enjoyed every moment of the class. The researcher used modern multimedia projector to make the lecture more attractive and visible and understandable and introduce some techniques such as peer and group learning, cooperative and collaborative learning to make the lecture more active and student centered. He provided corrective feedback to his students when they

needed to ensure a very student-friendly environment in the classroom. He also assessed their performance gradually following formative assessment, thus keeping a sharp eye on their behavior, attitude, and gradual learning process. Whereas, in traditional teaching methods, students did not give any feedback to questions, but now, they are actively participating in the class and providing feedback to the researcher and to their fellow friends spontaneously.

The researcher found that the three key theoretical ideas have had a great impact on the lesson.

In making the lesson plans, he had a very effective and impressive impact of the three basic theoretical ideas on his lesson plans. From the concept of constructivism, researchers learnt that no student had blank knowledge, rather every student had some previous experiences, language skills, social interactions and they can learn and construct knowledge and meaning if they got favorable support from teachers. It is evidenced from the experience of the class that researchers conducted on the basis of lesson plans. When he raised the question of what would be the learning objectives, they promptly responded and helped him to set the objectives, they almost completed the homework and were ready to participate in the class in the form of answering questions or participating in pair or group activities. This concept helps researchers to design the lesson in such a way so that he can input some techniques to make them active in the learning processes. However, researchers failed to incorporate all the classroom practices and methods of constructivism such as project works, field works, inquiry-based learning, collaborative learning, and real time use of ICT.

Gagne's nine steps of learning helps researchers tremendously to design his lesson plan step by step from gaining attention to retention of knowledge and making the lesson more attractive, active, and understandable.

Assessment has a direct impact on a student's learning because through this process we evaluate whether learning objectives are attained or not. The process of formative assessment also helped researchers to design effective lesson plans as it gave the spaces of assessing students at the time conducting the classes. Through this assessment process, researchers can identify the strengths and weaknesses of his students and give corrective feedback immediately. However, it is a little bit difficult to certify students on the basis of formative assessment. In the end, the researcher realized that he achieved the learning outcomes of the four lesson plans by applying the classroom practices of the three influential and important theories of curriculum, learning and assessment.

Limitations

At the time of conducting the classes, some students faced the problem of inertia, as they never engaged themselves in the teaching and learning activities and they had poor language capacity, inadequate socialization, and insufficient prior

knowledge. Though researchers had implemented the class with only 26 students, he had most other classes with more than 100 students per class. Then, it would not be possible to take care of such a large number of students, assessing formatively and providing feedback individually. It takes huge pre-plans and time to prepare an effective lesson plan that researchers have prepared. At the time of implementing the lesson plan, he faced some problems in following every step of Gagne's instructions and applying the classroom practices of formative assessment. It requires more time to implement the lesson plan in a proper way.

Rooms for Improvement

Since the researcher prepared and experimented with only four lesson plans for his students and found impressive results, he should replicate and apply this process in all the lessons of the courses. Small class size with advanced educational aids and materials in the classroom and real time online platform could be an effective way to promote learning. The sitting arrangement of the class should be more flexible so that he could rearrange the classroom as he wishes. In order to ensure true learning for students, researchers realized that he need to provide written feedback to students and assess them at every step of their learning.

Conclusion

The study assessed the effects and reflection of lesson plans that were prepared in considering constructivism, Gagne's 9 events of learning and formative assessment and implemented to the students of honors second year in intermediate microeconomics course. An explanatory sequential mixed research method is used to see the effects of lesson plans. In order to prepare the integrated lesson plans, basic definitions, and critical analysis of three concepts from curriculum, learning and assessment are provided. After conducting classes on the basis of lesson plans, a reflective analysis of new classes and previous classes is incorporated into the study. Finally, the results of the study that was collected through quantitative and qualitative data about the effectiveness of lesson plans and new teaching style are found very impressive and that was confirmed by the response from the students in the interview sessions. The majority of the students either agree or strongly agree about the statement relating to the teacher's effectiveness, teaching style and assessment style. The mean score for the statements was found in the range of 3.65 to 5.00. Comments and interviews from students were very encouraging since they enjoyed the method and involved themselves very actively in the teaching and learning process.

If a teacher wants to improve his method of instruction to become an effective teacher, then, this study will be helpful since it provides step by step guidelines for making a lesson very interactive. It also helps the teacher to grasp the idea on how to assess the performance of the students instantly and provide corrective feedback. The findings also help the students to realize that they need to participate very actively in the classroom activities. Finally, the findings of the study can be very crucial for the future educators and policy makers and other stakeholders to know how to design a theory-based lesson plan and implement it

successfully in the classroom. However, since there are so many theories in curriculum, learning and assessment, this study basically focuses on constructivism, Gagne's 9 events of learning and formative assessment. Therefore, further research can be conducted by considering connectivism, blended learning and summative assessment.

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Appendix A: Lesson Plan

Lesson Plan Structure:

There are three main stages of a lesson. The stages are:



It incorporates the subject name, topic name, learning objectives (prepared on the basis of Blooms Taxonomy), lesson steps such as icebreaking or introducing the session, recalling previous lesson, lesson development which include explanation, demonstration, practice, guidance, and feedback session and ending session that comprises wrap up, assessment and next step’s lesson.

Before going to the class, the researcher prepares the lesson plans with a concrete description of step-by-step procedures for implementing the lessons among the students, carrying necessary educational materials such as marker, white paper etc. Though the researcher intends to manage his classroom so that he can reach all my students easily and they can hear my lecture equally, it becomes almost impossible due to inadequate infrastructural support. All my students are to sit on fixed low and high benches. Researcher arranges two low and high benches in such a way so that after completing the instructions from my side, they can form a group with four to five students and face one another and discuss and actively participate in the group activities.

(1) Lesson Outline			
Subject: Intermediate Microeconomics	Topic: Different Concepts of Utility Analysis	Class: Honors Second Year.	Total Duration: 60 minutes Theory mapping
Learning Objectives: In this lesson, students are expected to: 1. Define utility. 2. Describe cardinal and ordinal utility, marginal and total utility with example. 3. Illustrate the law of diminishing marginal utility. 4. Analyze consumer equilibrium on the basis of the relation between price and marginal utility.			
Lesson Steps		Duration	Theory mapping
Beginning Wonderful and attractive starter activities to engage students with declaring the learning	✓ First of all, I congratulate all my students in my class and draw their attention to some picture such as Apple or Ice-cream through a multimedia projector. ✓ Then, asking my students what concepts we can learn with Apple	10 minutes	Gagne’s 1 st step Gagne’s 2 nd step Gagne’s 3 rd

<p>objectives and verifying previous knowledge.</p>	<p>provides some clues. I create an environment so that my students themselves can identify some of the learning targets.</p> <p>✓ Then, I will ask my students whether they know something about the concepts of utility or is it the concepts that they read in the previous classes? Trying to introduce and implement <i>scaffolding</i> and retrieve previous knowledge.</p>		<p>Step and constructivism to know the previous knowledge</p>
<p>Development This is the most important part of my lesson plan where I explain the learning contents with verbal, tabulation, and graphical explanation. Demonstration, guided practice opportunities, feedback and formative assessment activities are provided in this segment of my lesson plan.</p>	<p>✓ I asked my student to read what is utility and how we can give examples of different types of utility and <i>create some pairs</i> to discuss their views with each other.</p> <p>✓ I tabulate and draw and explain the marginal and total utility with concrete examples. Then, giving some examples to draw similar types of graphs by students themselves.</p> <p>✓ Working as a role <i>player</i> when a single person eats the same items such as ice-cream at a time, then links this with the law of diminishing marginal utility theory.</p> <p>✓ <i>Forming a group</i> to think how a consumer can reach equilibrium with his/her utility preference and market price and working as moderator of this group activity.</p> <p>✓ After observing the group activities of my students, I provide constructive feedback.</p> <p>✓ Then, I make some <i>quiz</i> type questions to check and test my students' learning.</p>	<p>40 minutes</p>	<p>Apply Gagne's 4th, 5th, and 6th steps.</p> <p>Group Discussion</p> <p>Formative Assessment</p>

<p>Ending Wrap up the whole sections of today’s lesson and give some clue what will be discussed in the next class.</p>	<p>✓ I summarize the main points of today’s class, especially receiving feedback from my students in their own words.</p> <p>✓ Then, I will remind my students that there are mainly two types of utility namely cardinal and ordinal utility and inform them that tomorrow we will learn indifference curve analysis which is the main instrument of ordinal utility.</p> <p>✓ Give them homework on indifference curve analysis.</p>	<p>10 minutes</p>	<p>Gagne’s 7th, 8th, and 9th steps of learning</p>
<p>Lesson Outline 2</p>			
<p>Subject: Intermediate Microeconomics</p>	<p>Topic: Indifference curve analysis</p>	<p>Class: Honors Second Year.</p>	<p>Total Duration: 60 minutes Theory Mapping</p>
<p>Learning Objectives: In this lesson, students are expected to: -</p> <ol style="list-style-type: none"> 1. Define indifference curve. 2. Discuss the characteristics of indifference curves. 3. Illustrate the slope of the indifference curve. 4. Categorize the shape of indifference curve on the basis of commodity nature and marginal rate of substitution 			
<p>Lesson Steps</p>		<p>Duration</p>	<p>Theory Mapping</p>
<p>Starting</p>	<p>✓ Telling a story on every individual’s perception is different from others to draw their attention to today's lesson.</p> <p>✓ Declaring the learning objectives to my students. The objectives are set in such a way so that I can teach them lower order thinking concepts to higher order thinking concepts.</p> <p>✓ Ask my students what the origin of today’s concepts is and what related concepts were discussed in the previous lesson?</p>	<p>10 minutes</p>	<p>Gagne’s 1st to 3rd steps of learning</p>

<p>Instructional Phase</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Definition of indifference curve with examples in the form of table and graph is given. <input type="checkbox"/> <i>Forming some pairs</i> to discuss the characteristics of indifference curves and write those characteristics in a white paper. <input type="checkbox"/> Asking students to illustrate the slope of the indifference curve and providing effective support from my side, thus, helping them to construct their own knowledge. <input type="checkbox"/> Shape of the indifference curve with commodity characteristics and Marginal Rate of Substitution (MRS) is demonstrated, then, asking them to discuss in pairs and write and explain in the white board, thus encouraging them to learn by doing. <input type="checkbox"/> <i>Asking some short questions</i> to my students to check their level of understanding and provide appropriate support where necessary. 	<p>40 minutes</p>	<p>Peer group discussion</p>
<p>Ending</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Asking my students what the Big Ideas of today's lesson are, write them one by one on the white board. <input type="checkbox"/> Discussing the fact that indifference curve shows what a consumer is willing do whereas what a consumer can do will be discussed tomorrow. 	<p>10 minutes</p>	<p>Formative Assessment and Gagne's last 7th to 9th steps of learning</p>

Lesson Outline 3			
Subject: Intermediate Microeconomics	Topic: Budget Line Analysis	Class: Honours Second Year.	Total duration: 60 minutes Theory mapping
Learning Objectives: In this lesson, students are expected to: 1. Define the budget line. 2. Identify The equation and slope of the budget line. 3. Demonstrate the characteristics of the budget line. 4. Examine the shift of the budget line.			
Lesson Steps		Duration	Theory mapping
Pre-instructional Phase	<ul style="list-style-type: none"> ✓ A video on the budget line is shown to students to gain the attention of my students. ✓ My students get informed about today's learning targets that are already given above. ✓ I ask some questions on utility and indifference curve to check their previous knowledge and experience. 	10 minutes	Gagne's first three steps
Instructional Phase	<ul style="list-style-type: none"> □ Encourage my students to think about their budget to buy some necessary items given the market price and limited income, and share their ideas with their pair. □ Then, I provide a concrete definition of the budget line with an example. □ To understand the comprehending power of my students, I give some clue on prices of two goods and fixed income and ask them to write a budget equation and derive its slope. □ Forming some groups to discuss and examine how a budget line shifts, then, welcome anyone from the group members selected randomly in front of all to demonstrate at least one point. 	40 minutes	Gagne's 3 rd to 6 th steps and constructivism and formative assessment by providing instant feedback

	<input type="checkbox"/> I critically observe their learning activities and provide necessary feedback when they need it. <input type="checkbox"/> I ask some open-ended questions to know the level of their understanding.		
Post Instructional Phase	<input type="checkbox"/> Wrapping up the key ideas of today's lesson. <input type="checkbox"/> Inform the students that we have already known a consumer's wills and the budget constraints. Next lesson will discuss how consumers will achieve their equilibrium. <input type="checkbox"/> Giving homework to write the main points of indifference curve and budget line	10 minutes	Gagne's 7 th to 9 th steps of learning.

Lesson Outline 4			
Subject: Intermediate Microeconomics	Topic: Consumer Equilibrium Analysis	Class: Honors Second Year.	Duration: 60 minutes Theory mapping
Learning Objectives: In this lesson, students are expected to: 1. Define consumer equilibrium. 2. Describe consumer equilibrium with the help of a diagram. 3. Illustrate consumer equilibrium with the concept of cost minimization. 4. Demonstrate changes in consumer equilibrium.			
Lesson Steps		Duration	Theory mapping
Inauguration	<input checked="" type="checkbox"/> Stimulating the curiosity of my students by asking questions on how a consumer balances his/her wills and purchasing capacity, giving some time for brainstorming. <input checked="" type="checkbox"/> Then, asking some questions on what the learning targets may be today and gradually disclosing the learning objectives to them.	10 minutes	Gagne's First 3 steps of learning.

	<ul style="list-style-type: none"> ✓ Creating an environment for my students to remember the previous core concepts of previous two lessons, namely, indifference curve and budget line 		
Development	<ul style="list-style-type: none"> ✓ Delivering the content of learning objectives one by one to my students with the help of table, graph, picture, and video. ✓ Students receive my guidance to learn the lesson and practice them deeply. ✓ Forming some groups with five members in each group to discuss the lessons among themselves to enhance cooperative learning. ✓ Frame some quiz type questions to test their knowledge instantly. 	40 minutes	Gagne's 4 th , 5 th , and 6 th steps of learning & Group Activities & formative assessment in the form of quiz
Closure	<ul style="list-style-type: none"> ✓ Overall summary of the four lessons is discussed now as the four lessons are interlinked. ✓ Students will be given some indications on what to think about producer equilibrium analysis which is more alike to these four lessons. 	10 minutes	Gagne's last 3 steps.

Appendix B: Questionnaire

Research Title: *Application of Constructivism, Gagne's 9 Events of Learning, and Formative Assessment for Teaching the Intermediate Microeconomics Course in Meherpur Government Mohila (Girls) College, Bangladesh.*

Dear Participant,

Thank you for taking the time to fill in this questionnaire and agreeing to be part of this research study. Please answer each question based on your current class experience. You can provide additional information where indicated. All responses are anonymous. Responses to these questions are important to help improve the course and how it is taught. This questionnaire consists of two sections. **Section One** asks you information about yourself and **Section Two** asks you to respond to items related to perception of new teaching and learning techniques and performance of your class teacher. There are **2** pages in total. It should take about 10-15 minutes to complete this questionnaire.

A: Personal Information: (Please circle accordingly)

1. Gender: Male / Female
2. Age: 18-20/ 21-23 /24-26

Please rate the teacher's effectiveness in the following areas:

Criteria	Ratings				
Teacher's effectiveness	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Teacher's preparedness in terms of preparing lesson plan, updated knowledge, and demonstration capacity was excellent.	1	2	3	4	5
2. The level of knowledge of the subject matter of consumer behavior at the start of the class was poor.	1	2	3	4	5
3. The level of knowledge of the subject matter of the course increased at the end of the class.	1	2	3	4	5
4. My teacher draws our attention, states the objectives of every day's and recall previous day's learning at the beginning of the class	1	2	3	4	5
5. My teacher presents different information, provides guidelines, do practices at the class.	1	2	3	4	5
Student's Perception					
6. I am happy with the knowledge gained throughout the class	1	2	3	4	5
7. I feel I achieved the desired learning outcomes from the class.	1	2	3	4	5
8. Teacher uses of various teaching aids and technology.	1	2	3	4	5
Teaching Styles					
9. Our class stays busy and does not waste time.	1	2	3	4	5
10. My teacher explains another way if we do not understand something.	1	2	3	4	5
11. My teacher checks to make sure we understand what he is teaching us.	1	2	3	4	5

12. My teacher takes time to summarize what we learn each day.	1	2	3	4	5
13. My teacher wants us to improve our thinking skills.	1	2	3	4	5
14. My teacher helps to set goals for our learning and keep track of our progress.	1	2	3	4	5
Assessment Styles					
15 My teacher assigns homework that helps me to learn.	1	2	3	4	5
16 When my teacher assesses my work, he writes on my paper to help me understand.	1	2	3	4	5
17 My teacher treats students with respect	1	2	3	4	5
18 My teacher is tolerant of different opinions expressed in class.	1	2	3	4	5
19 My teacher effectively encourages students to participate, ask questions and give answers.	1	2	3	4	5
20 My teacher provides clear constructive feedback.	1	2	3	4	5
21 My teacher assesses our performance at every step of our learning.	1	2	3	4	5

Q-1. What was the best part of the classes? Please comment.

Q-2. What was the worst part of teaching second year Microeconomics? Please comment.

Q-3. What is the strength of your teacher? Please comment.

Q-4. What suggestions do you have to improve the teacher's teaching? Please comment.

Q-5. Do you think you are actively participating in the class compared to previous teaching techniques? Please comment.

Appendix C – Interview Questions

1. Have you ever heard about lesson plans?
 2. Do you participate in a class that are conducted on the basis of structured lesson plan?
 3. Is the class better than the traditional class? How?
 4. Do you like to be assessed in a formative assessment context?
 5. Which part of the class was interesting? Why?
 6. Which part was boring? Why?
- Do you have any suggestions to improve the quality of the class?