

Teachers' Beliefs about Differentiated Instructions in Mixed Ability Classrooms: A Case of Time Limitation

Jaweria Aftab
Independent Researcher
jiya.aftab@gmail.com

Abstract

Students in today's mixed ability classrooms come from diverse backgrounds with needs. In such a scenario, differentiated instructions are of prime importance for teachers to deal with in mixed ability classrooms. The teaching experiences and academic life mould perceptions of teachers which effects their teaching style; therefore, it is important to know teachers' beliefs and perceptions regarding teaching in a mixed ability classroom at middle school level so as to guide educators and heads inside and outside the institution. For this study, quantitative research method was used to explore and understand the beliefs and perceptions of the teachers of middle schools regarding implementing differentiated instructions. The sample size included 120 teachers who were sent a survey questionnaire through online Google form and was constructed by customizing the questionnaire from Ballone and Czerniak (2001). The analysis of quantitative inquiry revealed that there is a positive association between teachers' beliefs about their intentions and stakeholders' expectations to implement differentiated instruction. It was highlighted that all stakeholders wanted teachers to implement differentiated strategies; however, the teachers were found to be short of planning and instructional time for differentiation.

Keywords: differentiated instructions, mixed ability classrooms, teachers' beliefs, multiple intelligence

Introduction and Background

In this time and age, implementation of differentiated instruction is compulsory as the teachers have children from

diverse background with varying learning capabilities and preferences in their classrooms. Their students' learning potential, their interests, and their intellect differ from one another. Not only do they differ in their culture, students sometimes go through mental disturbances that originate among their close family members. All such variables are responsible for influencing their learning desires and abilities. Tomlinson (2001) reported that the academic diversity has expanded in the last few years. Students vary in their learning styles and preferences and this difference may be due to their exposure to various languages, home environment, and also the type of assistance provided by family members (Tomlinson, 1999). Tomlinson (1999) goes on to say that many of the students enter classroom with learning confusions and disabilities, while there are also students who learn rapidly and require less assistance, thus impeding learners to conceptualize the same subject with the same style of teaching.

It is not a piece of cake for a teacher to teach in differentiated classrooms (Tomlinson, 1999), because teachers like students have their own preferred teaching styles. Some teachers prefer rote learning while other teachers focus on in-depth comprehension. Similarly, Some teachers favour lecture based teaching while others choose demonstration and hands on activities. Teachers and educators when craft classrooms, should discern that they cannot stick to one method of teaching as children do not learn through one teaching style. Some students want to learn alone, while others with peers; some prefer rapid-fire learning while others want demonstration and reflection. Addressing all these needs is now an integral chunk of teaching; therefore, schools should modify classroom instructions keeping in view the comfort and readiness level of children and their suitability, as using the same method of teaching will decline the learning abilities of learners (Tomlinson, 1999). Ehrman, Leaver and Oxford (2003) report that the harmony between students' preferred style of learning and teachers' pedagogy yields better results in terms of student satisfaction, while a clash between them lead to a high anxiety level in students.

An efficient mixed ability classroom identifies and considers the

uniformity and uniqueness among students and it is adjustable and adaptable (Tomlinson & Allen 2000). In a mixed ability classroom, the teacher considers diversity and provides learners with an opportunity to enhance their skills to the fullest (Tomlinson, 1999). The specialists and authorities in the field of education put forward their stance that teachers fail to create a learning environment in the classroom and lack the ability to amend the regular curriculum. According to Gardner (1983), intelligence is the capability or talent to work with, apply or manipulate new information, to resolve an issue or to construct a new commodity. Gardner states that each individual possesses nine types of intelligences: musical, existential, logical-mathematical, intrapersonal, bodily-kinesthetic, linguistic, interpersonal, spatial and naturalist. Even though all students have all of them, yet each has a unique blend of these intelligences. Therefore, in one student, linguistic intelligence may be dominant, whereas another may find musical intelligence to be dominating. Retting (2005) suggests that teachers should include at least few intelligences in lesson planning on daily basis. He goes on to suggest that few teachers make use of multiple intelligences in their lesson planning as they do not know the right way to use it.

The students populating in private middle schools come from diverse backgrounds having different cultures and learning needs and preferences. This diversity increases in big cities like Karachi than small towns and villages. Without information and research on these issues, it will be toilsome to enhance students' performance and academic success as the students' understanding is not being ensured.

Pedersen and Liu (2003) cite in their paper that though there are uncertainties and doubts relating to teachers' beliefs about education, these are recommended because teachers' perceptions and beliefs reflect their teaching practices in the classroom, which ultimately influence the academic success of students. They argue that teachers' educational beliefs are constructed through personal experiential learning gained as a student and as a teacher and they influence teachers' abilities and attitudes towards applying technology driven learner centered approaches in the classroom and

how they are implemented. Though teacher training programs equip teachers with the tools needed to revamp the curriculum to accompany differentiation; however, teachers are unfortunately faced with the provocation of lack of time to plan, design, and deliver the content with differentiation. Teachers are proffered curriculum topics with the only authority to modify the sequencing of the topics and teaching strategies. In such a scenario, they have to finish the curriculum within the given time-frame. Considering the challenges faced by teachers in implementing differentiation, education authorities and education managers are required to put light on the reality and bring amendments in order to avoid issues. On the basis of the results of the research study, the focal point of the paper is to debate on how the limitations of time in applying differentiated instruction fabricate barriers in the learning environment, debilitate teachers' artistry to refashion the curriculum and instructions, and squander teachers' dexterity through expensive workshops and training.

Hypotheses

Hypothesis 1: There is a significant association between the teachers' beliefs about their intention to implement differentiated instructions and stakeholders' expectations to implement differentiated instructions to meet the needs of diverse learners.

Hypothesis 2: There is a significant association between the implementation of differentiated instruction in a mixed ability classroom by teachers and the planning and instructional time available for instruction.

Literature Review

Learning can be interpreted as the conscious activity of gaining insight and knowledge through experiences and reflections and being trained in a formal setting like a school or college. Learning related performance is influenced by achievement and motivation (Cassidy & Eachus, 2000). Many learning theories have been developed focusing the learning characteristics of learners. One of such theory was given by Howard Gardner in 1983 called the theory of Multiple

Intelligence. The theory suggests that unlike the typical IQ tests which are used to measure intelligence, the multiple intelligence tests examine and evaluate the multiple intelligences that a child possesses; therefore, typical IQ tests are not the true predictors of intelligence.

Gardner (1999) defines intelligence as the fusion of biotic and mental attributes that empowers a person to resolve issues or construct valuable articles. The first intelligence test was developed by Alfred Binet in 1904, which evolved interest in individual differences and moved towards learning preferences. Dr. Maria Montessori in 1904 developed a model of education to boost the learning preferences of learners. There was a downturn in research in learning needs for 50 years because during that period, IQ and academic success were the focus of researchers. In 1956, Bloom's Taxonomy was designed which paced towards learning needs again (Chandler, n.d.).

Fierros (2004) reports that there are eight intelligences that were identified by Howard Gardner. These include linguistic intelligence in which an individual learns through written or spoken language or words, and it is highly appreciated in schools. Students with logical mathematical intelligence can work with reasons, rationale and arguments and understand with a numerical pattern (Gardner & Hatch, 1989); whereas, students having strength in musical intelligence understand through vibrations and frequency of sounds, so jingles and sounds with varying pitch can be used to teach them. Spatial intelligence aids in understanding through mind maps and a spatial world, while bodily kinesthetic intelligence develops the capability to deal with the movement of objects and body parts. Individuals having strength in interpersonal skill can better understand and recognize the attitude and temperament of people and accordingly communicate effectively, whereas intrapersonal intelligence helps in recognizing one's own feelings and accordingly guides his behavior. According to Fasko (2001) and Fierros (2004), logical-mathematical and linguistic intelligences are the pivot points for schools. Schools making use of multiple intelligences in the curriculum can better understand the needs of students and can design instructions accordingly. Multiple intelligences not only help schools to locate students' strengths and

weak areas, but also guide to the development of curriculum that caters to all eight intelligences of students.

Mixed ability classrooms

Instructors find it very laborious to teach students in the same class having different personality traits, interests, learning needs and styles, intelligences, and desires because they have to make a diversified lesson plan with numerous tasks and activities fulfilling the needs of all learners. All students in a classroom cannot be same in language learning, learning needs and preferences, intelligences, interests, and willingness, so a teacher should know how to handle a session in such a classroom fulfilling the needs of all learners and be aware of the problems and solutions to deal with them (Gurgenidze, 2012). Due to increasing trend of mixed ability classrooms, it is considered essential to maintain equity. Equity in a classroom is achieved when all learners are contented having diverse needs. Maintaining equity does not mean that all students are provided with equal educational resources or are treated equally, but it should be apparent in a holistic form in every activity (Valiande, Kyriakides, & Koutselini, 2011).

Critiques argue that a non-homogeneous class appears to be unhelpful and unproductive because due to many tasks and activities, students can get confused and lose interest. A Pakistani research study critiques by reporting that teachers find it difficult to manage a mixed ability classroom as they do not want to change their old teaching methods; however, these conflicts can be sorted out through discussion among all stakeholders (Shah, 2008).

Differentiated instructions

Tomlinson (1995) and Hall (2002) define differentiated instruction as a technique used for teaching students with mixed ability in a classroom and teachers change their instructional strategies keeping into consideration the diversity in the classroom. Teachers in a mixed ability classroom understand and analyze students' needs by conducting needs assessments. By understanding the needs of students, they modify their teaching practices and use different instructional methods to

deal with diversity. By doing so, all students reach to the same target; however, they take different routes.

According to Tomlinson (1995), schools facilitating differentiated instructions include continuous assessment of readiness level as per part of course of study. He goes on to explain the characteristics of differentiated classrooms asserting that they make different grouping of students in the learning environment. The learners in differentiated classrooms are facilitated to be responsible for their own learning through different activities and get an opportunity to investigate new learning through observation and exploration and the teacher directs them towards the goal. The goal is not only set by the teacher alone, but by the students too considering their willingness, learning abilities, and interests (Tomlinson, 1995). It is therefore important for heads and educationists to facilitate differentiated classrooms where a teacher is allowed to modify the learning content, learning and teaching methods, and assessment techniques as per needs, readiness level, and interest of the students and facilitate teachers with time and resources to conduct needs assessment of students. Differentiated instructions in the curriculum is not only required for students with learning difficulties but it is also used for mainstream students in order to enhance their level of learning.

Time limitations for differentiated instructions

The investigation of the research studies reveal that teachers remain reluctant to include differentiation into lesson planning on multiple grounds. Hertberg-Davis and Brighton (2006) maintain that teachers hang back for differentiation due to shortage of time available for planning. Joseph (2013) identifies time as one of the crucial hindrances faced by schools while applying differentiation. Due to lack of time, it is strenuous for teachers to calibrate the curriculum for inconsistent groups of learners (Vantassel-Baska & Stambaugh, 2005).

Especially when considering developing countries, it is practically not possible to teach according to each individual learner's needs due to issues of space, teaching resources, disinterest of school

heads in implementing differentiated instructions, and lack of modern technology. On the other hand, private school educators and school managers in Pakistan put effort for equipping teachers with the desired tools and skills needed for designing instructions and activities for mixed ability classrooms. It is also imperative to evaluate if the time is available as required by teachers to harmonize the lesson plan with differentiated activities and furnish the lecture.

The researches on teaching methods show a positive correlation between the teaching methods used by teachers and the academic success of students (Umer & Siddiqui, 2013). Students get good grades when taught using innovative methods of teaching instead of traditional teaching methods and therefore, teachers are advised to make use of science and technology in teaching, so that students are able to face the challenges of life ahead (Khursheed & Ansari, 2012). Thus, teachers should strive to create a balance while designing differentiated instructions and students should be made familiar with their strong and weak points, so that they are not dependent on their learning preferences and make use of other sensory organs too to receive a vast amount of information (Malik & Janjua, 2011).

Teachers' beliefs

The belief of a person reflects and anticipates his behavior and is the best guide to determine his future performances and commitments (Bandura, 1986). All beliefs surrounding a particular point develops a mindset which makes one act accordingly (Pajares, 1992). The investigation in the domain of education should make teachers' beliefs the focus of attention, which demands unambiguous clarification of concepts, analysis of crucial suppositions, uniform comprehension, sticking to the exact meaning, and accurate and organized analysis of beliefs. Critiquing on teachers' beliefs, Torff (2011) argues that professional grooming and teaching experience do not make any significant change in teaching practices. As the teachers start their teaching practices, their firmly established beliefs prevail over the situation without consideration of how much experience they have gained and how much professionally groomed they are (Torff, 2011).

It can be concluded that the belief of an individual has more impact than his knowledge in identifying the way they construct the meaning of any problem and thus they shape the behavior of that individual (Nespor, 1987). Accordingly, teachers' beliefs and perceptions regarding learner-centered approach to teaching must be considered while designing differentiated instructions and that is how the perceptions of teachers will influence the execution of these programs (Pedersen & Liu, 2003). They report in their study that the relationship between educators' beliefs and perceptions, their behavior while executing differentiated instructions and students' academic success must be analyzed.

To put it briefly, teachers of private middle schools are under intimidation to refashion the curriculum as per students' needs. As fueled by above research studies, teachers' beliefs must be reviewed along with disbursing on teachers' professional grooming, which reflect the provocations they encounter while differentiation.

Methodology

Study design

Quantitative method was chosen to extract data for this study. To understand the perceptions of teachers regarding the implementation of differentiated instructions in a mixed ability classroom in middle private schools of Karachi, the researcher chose quantitative method approach.

Instrument

Ballone and Czerniak (2001) questionnaire with some modifications was used for the study under investigation. Ballone and Czerniak (2001) conducted study on instructors' perceptions about accommodating children's learning preferences in science classes and developed open-ended questions for K-12 teachers to find out their beliefs regarding implementing different teaching strategies to fulfill the needs of the students using Ajzen and

Fishbein's (1980) method. The collected data was analyzed to construct items on a bipolar Likert scale with 5 anchors for the questionnaire. On the Likert scale, 1 indicated very unlikely, 2 indicated slightly unlikely, 3 denoted neither, 4 represented slightly likely, whereas 5 indicated very likely.

Two sets of questionnaires from Ballone and Czerniak (2001)'s study were combined and adapted to know if teachers implement differentiated instructions to fulfill the needs of children in a mixed ability classroom. The set of questionnaire requiring demographic information of the participants was also taken from Ballone and Czerniak (2001)'s study. The total survey questionnaire consisted of 12 items, which were responded by the participants to express their feelings about implementing differentiated instruction.

Sample

The sample for the study included teachers from private middle schools of Karachi differing in education, experience and age. The demographic profile of the sample N=120 was also collected from each participant while collecting data. Only teachers teaching in middle schools were chosen for this research. Since the curriculum content increases in middle schools, the study explored if middle school teachers implemented their learning from workshops fully in the classrooms.

Sampling method

The set of sample N=120 was selected using snowball sampling method. Snowball sampling method is also called chain sampling where the researcher asks the participants in her/his contact to name other possible informants in their contacts to facilitate the sample size (Ellsberg & Heise, 2005). The active participants are then asked to nominate more applicants for responding to the questionnaire (Marshall, 1996). The questionnaire for the study was sent to teachers teaching in private middle schools of Karachi through online Google form which is easy to disseminate and collect responses.

Data analysis procedure

The data for the study gathered through online Google form was collected on Google spreadsheet provided by Google services. The collected data was calculated for percentages of sample characteristics such as gender, experience range and qualification. The data including demographic profile were entered on SPSS version 17 for statistical analysis and for finding the association between the variables. SPSS was used because it can calculate and analyze large amount of data. Pearson Chi-square test was applied for finding the association and the significance level chosen was 0.05 for doing statistical test.

Results

The results of the research study gave an overview of the perceptions of teachers surveyed. The data were entered into SPSS version 17 and the generated results are as follows:

Research Hypothesis 1: There is a significant association between the teachers' beliefs about their intentions to implement differentiated instructions and stakeholders' expectations to implement differentiated instructions to meet the needs of diverse learners.

Table 1 shows Chi-square test results where the last column reports 0.000 significance level ($p=0.000$) which is less than the desired alpha level of 0.05. Thus, we conclude that the test is highly significant and we accept the alternate hypothesis that there is an association between teachers' beliefs about their intention and stakeholders' expectations to implement differentiated instructions to meet the needs of diverse learners.

Table 1. Association between teachers' intention to implement and stakeholders' expectations

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	377.029 ^a	136	.000
Likelihood Ratio	110.129	136	.949
Linear-by-Linear Association	3.452	1	.063
No of Valid Cases	120		

158 cells (97.5%) have expected count less than 5.
The minimum expected count is .01.

Research Hypothesis 2: There is a significant association between the implementation of differentiated instructions in a mixed ability classroom by teachers and the planning and instructional time available for differentiation.

Table 2 shows the result of chi-square test on SPSS where the last column reports level of significance to be 0.000 ($p = 0.000$) which is lesser than the desired alpha level of 0.05. Thus, we conclude that the test is highly significant and we fail to reject the alternate hypothesis that there is a significant association between the implementation of differentiated instructions in a mixed ability classroom by teachers and the planning and instructional time available for differentiation. This indicates that the more planning and instructional time is available to teachers, the more they will implement differentiated strategies and vice versa.

Table 2. Association between implementation and instructional and planning time

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	50.187 ^a	16	.000
Likelihood Ratio	50.713	16	.000
Linear-by-Linear Association	9.290	1	.002
No of Valid Cases	120		

19 cells (76.0%) have expected count less than 5.
The minimum expected count is .35.

The intent of the study was to uncover the beliefs of teachers towards implementing varied instructional strategies to meet the needs of diverse learners. The results revealed that 95 % of the teachers were willing to implement differentiated instructions; however, 40.8 % of the teachers implemented differentiated instructions. Teachers believe that implementing differentiated instructions will enhance students' academic success and performance, motivate students to participate actively in class, enhance students' interest towards learning, and meet the needs of learners with different learning needs and academic background; however, there is an implementation gap.

Discussion

Importance of teachers' perceptions

The study under investigation revealed positive attitude of teachers towards implementing differentiated instruction in middle schools and they showed willingness to use them in their classrooms. Teachers believe that implementing differentiated instructions will not only cater diversity, but will also fulfill the needs of the students with special needs. It discourages rote memorization and encourages creativity by changing content, process, and product. The study also revealed that though the teachers understand the usefulness of differentiation, yet their willingness and eagerness to use differentiated

strategies is not apparent in practice. Related research study regarding the implementation of differentiated instructions in a mixed ability classroom indicates that teachers admit that students vary in their learning styles, background, learning profile, interests, and willingness to study; however, their acceptance and recognition is not seen in their teaching practices (Brighton, Hertberg, Callahan, Moon, Brimijoin, Conover & Reynolds, 2003).

A research study was carried out by Affholder (2003) and it was found that differentiated strategies are used by more experienced teachers who have been teaching for long, know the curriculum content well, and have been given training to use the strategies to teach the content. Keeping in mind the above discourse and theoretical citations, it was investigated that schoolteachers develop positive mindset towards using differentiated strategies, when they are provided with the platform and frequent use of the varied strategies make them eager to use them further in their context.

Stakeholders' expectations

The research inquiry revealed that the majority of stakeholders including school administrators, teachers, parents, parents of children with special needs, and students favored differentiated instructions in private middle schools. 92.5 % of the teachers believed that administrators supported the idea for differentiation, 83.3% of the teachers believed that students favored, 92.5 % of the teachers perceived that parents favored, 82.5 % of the teachers believed that parents of children with special needs favored, and 80% of the teachers believed that teachers and colleagues favored the implementation of differentiated instructions. This proves the hypothesis that there is a significant association between the teachers' beliefs about their intention to implement and stakeholders' expectations to implement differentiated instructions to meet the needs of learners. The results from survey investigation divulged that the majority of the stakeholders were in favor of implementing differentiated strategies.

As noted by Ballone and Czerniak (2001), the stakeholders' expectations impact teachers' willingness to use differentiated strategies

and their beliefs in this regard influence their attitude to do so. Subban (2006) concluded in his study that it takes time to see the impact of any differentiated program and administrators should jointly work with teachers and spend time to make them change agents in the beginning year. Beliefs are formed in relation to the beliefs of other people in the society and they transfer through their culture (Pajares, 1992), which reveals the fact that the belief system of teachers should be influenced with positive expectations from all stakeholders including parents, teachers, administrators, students, and parents of students with special needs.

The school heads were concerned about implementing differentiated instructions and used resources too; however, teachers' beliefs regarding implementation of differentiated instructions were influenced in the same way. Further, the teachers felt themselves overburdened due to workload in school.

Time constraints and management

The results from the study revealed that only 15 % of the teachers believed that instructional time for differentiation is available and 13.3 % of the teachers thought that they had planning time. Hence, a majority of the teachers do not support the statement that planning and instructional time is available for differentiation. For the participants of the study, shortfall of planning and instructional time were the prime issues and hurdles they had to face while implementing and designing differentiated instructions. Hertberg-Davis and Brighton (2006) reported in their study that teachers found it challenging to implement differentiated teaching due to lack of planning time. They pointed out that they had a busy schedule throughout the day, which effected checking student assignments, preparing planners, and taking classes (Hertberg-Davis & Brighton, 2006). They also reported the fact that differentiated tasks are not designed in air, but one has to do some homework before designing (Hertberg-Davis & Brighton, 2006). Teachers need to conduct needs assessment of students in the classroom and check and evaluate them by grouping students with the same interests, readiness level, learning needs and background. Also, differentiated instructions generate the desired results when the

teachers not only use them frequently, but maintain a record of its success in their planners so that successful strategies can be shared. The teachers can make it easy by making students responsible for maintaining a success record of the work they do and maintain a schedule of meeting with the teachers to discuss successful tasks and the goals achieved within the time period. The teachers should either meet students individually or in groups to provide feedback on their progress and maintain a record. In such a scenario, it is toilsome to think of designing different tasks for teaching the same topic in the same classroom. According to Ballone and Czerniak (2001), block scheduling can be used in place of traditional daily schedule, which could provide more teaching and planning time to teachers.

Conclusion and Recommendations

Where it is fair that diversity should be catered, it is also imperative that teachers extrinsically and intrinsically work for its success. Without any doubt, positive expectations from all stakeholders including administrators, parents, teachers, parents with special needs, and students will develop positive attitude of teachers regarding differentiated instructions, but all these expectations will fail if the teachers do not get support. The responsibility of implementing differentiated strategies does not fall only on teachers, but joint and coordinated effort is required from all stakeholders of middle schools to make it possible. Teachers find it toilsome to implement differentiated instructions due to classroom management issues where discipline is a main problem. Also, they are given a planned course content which they have to cover in the given time. Subban (2006) stressed that the success of differentiated program is only possible when all participants make joint effort and become change agents.

On the basis of the above results and discussion, the following conclusions and recommendations are drawn:

1. There is a positive influence of stakeholders' expectations on teachers' belief system and attitude to execute differentiated instructions; however, administrators also need to be flexible and versatile in their work fashion.

2. Administrators should apply and make use of block scheduling method for timing so that teachers have fewer periods to take and more time for teaching a topic, where they can apply differentiated instructions.

3. The use of differentiated activities is not done in a vacuum; therefore, the administration and school heads are required to provide teachers with relevant resources.

4. Teachers are also the stakeholders and their beliefs and decisions are of prime importance when designing any school improvement plan. Teachers should be encouraged to take decision so that they feel the ownership of students' academic success and performance and render all possible support in this regard.

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