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Students' Transition from Grade X to CAIE A-Level: In the Context of Mathematics Curriculum in Nepal

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ABSTRACT

This study examines students' transition from grade X to CAIE A-level in the context of school mathematics curriculum in Nepal. This study is based on the qualitative study design covering a total of ten participants from two A-level schools in Nepal. Content analysis and phenomenology were used as methodological approaches to the study. The study finds that there exist challenges for the students of Nepal during the transition process in different dimensions. The study concludes that there is a substantial gap in contents and assessment systems between the two mathematics curriculums. The study recommends the bridging of mathematical contents, preparing and implementing transition strategies in schools where students transit from grade X to CAIE A-level.

Keywords: bridging, curriculum, mathematics, transition, transitional gap

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INTRODUCTION

Students' transition from one level to another is becoming an important international educational issue (Evans et al., 2018) and getting more importance in the world. Students transiting to another level experience a curricular gap (Kentucky Department of Education, 2011) and can impact for years (Watson, 2016) since it often contributes to declining students' performance (Taverner et al., 2001). So, transiting from one level to another level is very crucial in a child's education. However, in the context of Nepal, it is apparent that students' transition has not been discussed much.

Formal schooling in Nepal is a total of 12-year-long education, which is divided into two parts, basic education (school year 1 to 8) and secondary education (school year 9 to 12). Basic education begins at the age of 5 (grade I) and lasts at the age of 12 (grade VIII). Similarly, secondary education begins at the age of 13 (grade IX) and is completed at the age of 16 (grade XII). At the end of the 10^{th} year of schooling (grade X) students take the secondary education examination (SEE) and at the end of the 12th year of schooling (grade XII) students take school leaving certificate examination (SLCE). Students could transit to of advanced level (A-level) of the Cambridge assessment international education (CAIE) board after they passed SEE. In Nepal, predominantly, A-level students are those students who passed the SEE from the national examination board (NEB) of Nepal. They miss the exposure to the content of the international general certificate of secondary education (IGCSE) which is below A-level qualification for different key stages of the Cambridge school education system. In this context, the following questions arise. Are the students who had studied grade X ready to enter in A-level? What is there in A-level mathematics that is not in the grade IX-X curriculum? What is the role of the prescribed pedagogic approach? How do differences in the assessment system affect students' performance? This article will try to answer these questions.

Purpose of the Study

The purpose of this study was to explore gaps in students' transition from grade X to CAIE A-level in the context of the school mathematics curriculum. Moreover, this study also identifies the ways to bridge transitional gaps when transiting from grade X to A-level in the context of the mathematics curriculum.

REVIEW OF LITERATURE

Transition

Transition is a movement from one set of circumstances to another with changes to environments, relationships, behaviors, routines, roles, and expectations (Department of Education, 2014, p. 5). According to Wenden (2015) transition is a process, not a point in time, and is something that is experienced, rather than something that happens to a child and their family. Transiting from one level to another level is very crucial because learning experiences are mediated through the curriculum. Transition can be a positive step forward in the learning

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journey of a pupil and a foundation for success throughout their schooling (Neal, 2016).

The transition from one type of curriculum of one level to another type of curriculum involves changes in the teaching-learning culture (Gueudet et al. , 2016), and students' disengagement or adaptation difficulties are mainly attributed to pedagogical and school characteristics of secondary schools, beyond the discipline level. In an educational environment, the transition is a process of transformation and the learning is the result of the transition of individuals from novice to expert. (Gueudet et al., 2016).

In connection to the transition in mathematics curriculum from school to university, Stadler (2010) had identified three crucial aspects; mathematical learning objects, mathematical resources, and students as active learners to observe in the transition process. The mathematical learning objects and the mathematical resources have both individual and social dimensions, and the students as active learners have a relational dimension and connect the learning environment of the student with his or her intention to learn mathematics.

Strand (2020) studied students' transition at school from the sociocultural perspective of earning. The study identified that transition is a challenging time for students, and a poor transition can have a severe impact on students' academic performance and their social and emotional development. The study suggested four measures-"ensuring predictability, establishing a safe psychosocial learning environment, giving the students time to learn to be lower secondary school students, and collaboration at the school level and with the families (Strand, 2020, p. 129)" to make the smooth transition. In the study on 'transition between key stages' (Taverner et al., 2001) the transition or transfer of students from one school level to the next raises issues about curriculum, teaching, and learning. They suggested that problems related to transition can be managed with some strategies such as administrative approaches, pupil-centered approaches, curriculum continuity approaches, pedagogy approaches, and the metacognitive approaches.

Transitional Gap

Liston and O'Donoghue (2007) studied the difficulties in learning mathematics when students transit from secondary school level to university level and points out that students' attitudes, beliefs, emotions, mathematical self-concept, conceptions of mathematics, and approaches to learning mathematics are the determining factors in the transition process (p. 1). Peterson (2015) has explained the transitional gap as the insufficiency with requirements and has defined the gap as the difference between "what is" and "what should be".

Fong (1994) studied to bridge the gaps between secondary and primary mathematics and found that the basic gaps in the curriculum were due to the approaches used to teach the students and suggested a modified solution to bridge the model approach and algebraic approach to solve the problem.

Content

Content is a defined body of knowledge and the main lever of quality education (UNESCO, 2017). The secondary school mathematics curriculum in Nepal is designed and guided by Taylor's model of curriculum development that emphasizes the curriculum as the body of knowledge that promotes; a holistic view, meaningfulness, equity and inclusion, technology, focus on outcomes, and education for all. The curriculum framework aims to promote the skills related to sets, arithmetic, algebra, mensuration geometry, trigonometry, and statistics in the grades IX and X. Furthermore, grade IX and X optional mathematics are divided into nine different chapters namely, function, polynomial, matrices, trigonometry, vector, linear programming and graphs of quadratic equation, coordinate geometry, transformation, and statistics.

On other hand, the Cambridge University school mathematics curriculum framework promotes the skills related to; numbers, number system calculations and mental skills, problem-solving, organizing, and using data, shape, space measures–patterns and properties of shape–properties of position and movement–measures (Shrestha et al., 2012). Transiting to A-level from grade X could be a changing discourse in terms of content and its scope.

Assessment System

The assessment system is an integral part of every educational process (Aktas et al., 2021). An effective assessment system provides an evidence base (Sousa et al., 2011) to ensure the teaching is meeting students' learning needs. It is an important tool to identify areas where teaching can be modified/improved. It helps to provide feedback and encouragement to the teachers. It also gives significant insights into the judgment and decision-making on curriculum development and the revision process. According to Kitchen et al. (2019) evaluation system can provide powerful levers for transforming the instructional system if it is well designed. Likewise, Looney et al. (2019) explain evaluation as a tool to promote learning, rather than to sort out students.

Bridges' Transition Model

Author and organizational consultant William Bridges purposed a transition model in 1991. According to this model, the transition is a psychological process that involves the three phases; ending, neutral zone, and new beginning. In the first phase, 'ending' students experience emotions of fear, denial, anger, sadness, disorientation, frustration, uncertainty, and a sense of loss (Robertson, 1997). During the phase of 'neutral zone' students are often confused, impatient, and uncertain as they experience skepticism, low productivity, and anxiety about their role in the new situation. In the third phase, students experience openness to learning, high energy, and a renewed commitment to their role. The following figure explains the Bridges' transition model (**Figure 1**).

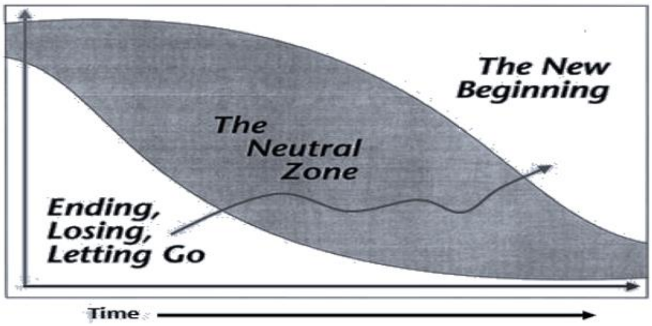

Figure 1. Bridges' transition model (Bridges, 2009)

Schlossberg's Transition Theory

Schlossberg (1981) proposed a model for analyzing human adaptation to transition. It is popularly known as Schlossberg's transition theory. She defined transition as any event, or non-event that results in changed relationships, routines, assumptions, and roles. This

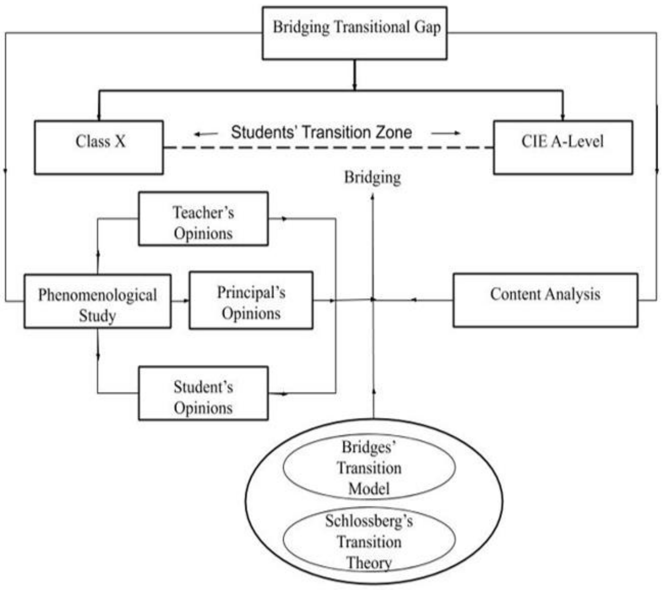

Figure 2. Conceptual and procedural framework

theory has identified the three major components of every transition; moving in, moving through, and moving out (Schlossberg, 1981). Furthermore, it identifies four major sets of factors that influence a person's ability to cope with a transition: situation, self, support, and strategies. They are known as the "4 S's" of transition (Schlossberg, 2011). According to this, during the transition process, different individuals react differently to the same type of transition and the same person reacts differently at different times. So, it can be explained that transition is not only a subjective matter that varies from person to person but it is also related to the time at which the things happen.

METHODOLOGY

The qualitative study design was applied in this study. Content analysis and phenomenology were used as methodological approaches to studying transitional gaps. **Figure 2** explains the whole conceptual and procedural framework to study students' transition.

The content analysis was used to study and analyze transitional gaps in various aspects of the curriculum such as aims, objective, scope, sequence, teaching methodology, materials, and assessment system. This review helped to identify the different themes of transitional gaps. The themes thus identified were used to get the relevant information through a phenomenological inquiry from students, teachers, and the principals.

Similarly, the phenomenological inquiry was used to explore the transitional gaps, issues raised during the transition, transition management strategies, and the current common practices used by the schools under this inquiry. All the responses from the phenomenological inquiry were analyzed in connection with models and theories. Bridges' transition model and Schlossberg's transition theory were used to explain students' transition.

Participants

Participants of the study were selected purposively from two A-level schools, both running classes up to grade X and CAIE's A-level program. The participants were selected based on their experience of teaching, learning, and administrating both grade X and A-level

Table 1. Names given to the participants

		Given name
School		Beta
		Rho
Principal		Principal of the Beta school
		Principal of the Rho school
Teacher	Teacher of Beta School	BT1, BT2
	Teacher of Rho school	RT1, RT2
Student	Student of Beta School	BS1, BS2
	Student of Rho school	RS1, RS2

programs which is the phenomenon under study (Moser & Korstjens, 2018). All the participant teachers in the study have experience in teaching mathematics for more than 10 years at both grade X and CAIE A-level. Two students, two mathematics teachers, and a school administrator/principal from each school were selected. So that the total number of participants in the study was 10 and this is a reasonable number of participants for any phenomenological research (Alase, 2017). **Table 1** represents the code name given to the participants to facilitate the analysis without disclosing personal details.

MAIN RESULTS

Transition and Transitional Gap

Transition is entering from one type of discourse into a different type and demands a changing lens to view the concepts. Transitioning from one school level to the next level may bring different issues in teaching and learning. The principal of Beta School argued that

> "When we move from one system to another system, one culture to another culture, and one country to another country we should always go through a transition process."

So, the transition process is always expected when we transit from one system to another. As the transition is subjective, multiple perspectives exist on its effect. The student BS2 from Beta School emphasizes students' own role in their transition as:

> "Students who are planning to study A-level should start preparing it from grade-X itself. It would be better if the prospective students explore through easily accessible A-level resources, such as syllabus and past papers from the web, and consult with senior students."

So, the transition is easier if prospective students explore different resources on the web and consult with the seniors about their studies right after their SEE exam. Emphasizing the students' preparedness before A-level admission, the principal of Rho school described that

> "Students need to be prepared themselves for the A-level before getting admission to the A-level."

Regarding the transition-related problem, the principal of Beta School indicated that the problem is associated with the student's own interest in their study and said that

> "Students who don't have much interest in mathematics, they find A-level mathematics difficult."

In connection to students' role in the transition process, student RS2 from Rho school explained:

> "We should be curious to learn, put our confusion with teachers and fellow students. I think the activeness of the students will ease the transition to A-level."

So, transition-related difficulties mostly depend upon the students' interest, readiness, and passion of the students towards their studies. It is common agreement among the participants about the effect of transition on students' achievement that students often experience a decrease in their academic achievement following the move to A-level from grade X. Concerning students' achievement, a teacher RT1 from Rho School explained:

> "In the first few months of A-level studies, most of the students find A-level mathematics quite difficult. The reason is that A-level mathematics is basically focused on students' own process of constructing knowledge rather than the steps or process of how the questions can be solved."

This situation is quite similar to the situation explained in Bridges' model of transition which involves three steps Endings, the Neutral zone, and the new beginnings. In the first few months students' have to leave the old situation behind while transiting to A-level like the Endings in Bridges' model. Students should try to transfer themselves as an independent thinker from pattern followers as explained in 'new beginning' by Bridges (2009). It completes the transition cycle in which new ways are developed and students start to feel a new sense and a new image of themselves in their learning endeavor.

So, one of the factors that affect students' achievement is the way they learn mathematics, that is, how students learn mathematics? Students studying through one type of approach find it difficult to study through another approach. During the transition process, students should change from process follower to constructor of their own knowledge. In the same context the principal of Rho School explained the situation of a few of his students as:

> "Surprisingly, some of our students, who have done well in their grades IX and X could not perform well in A-level mathematics. The extra support given to these students is not helpful to increase their performance significantly."

The possible reasons for this may be due to transition problems as explained by Taverner et al. (2001) that there is often a decline in students' performance due to transition. Regarding the issue related to the transition of students without optional mathematics in their grades IX-X, teacher BT2 explained:

> "In the first year, the students without optional mathematics in their grades IX and X find A-level mathematics more difficult to learn but in the second year, they gradually come into the mainstream. These students have to struggle more in the chapters related to trigonometry and coordinate geometry."

From this opinion, it can be concluded that students without optional mathematics face a real problem in some chapters like trigonometry and coordinate geometry due to a gap in the content of the study. So, while transiting from one curriculum to another curriculum there is always a gap.

Gap in Content

Regarding the content and scope of the curriculum, grade IX and X compulsory mathematics is broadly divided into seven different areas namely sets, arithmetic, algebra, menstruation, geometry, trigonometry, and statistics. Furthermore, grade IX and X optional mathematics is divided into nine different chapters namely function, polynomial, matrices, trigonometry, vector, linear programming and graphs of quadratic equation, coordinate geometry, transformation, and statistics. On the other hand, A-level core mathematics is broadly divided into three major areas namely, pure mathematics (units P1, P2, and P3), mechanics (units M1 and M2), and probability and statistics (units S1 and S2) (Cambridge International Examinations, 2018). **Table 2** depicts the content distribution in both curriculums.

There are many chapters included in the A-level curriculum and different choices are offered to the students, so they should not have to study all the papers/chapters. For A-level qualification, the student should take pure mathematics (P1), and pure mathematics (P2) or mechanics (M1), or probability and statistics (S1). Also, for A-level qualification, students should take pure mathematics (P1) and pure mathematics 3 (P3), and one of the combinations: mechanics 1 (M1) and probability and statistics 1 (S1) or mechanics 1 (M1) and mechanics 2 (M2) or probability and statistics 1 (S1) and probability and statistics 2 (S2). Concerning the breadth and depth of content student, BS2 explained that content of grade IX-X mathematics is surficial but broad in the area and said:

> "In grade IX and X we do not have much depth in mathematics, but it has greater coverage in terms of scope. We have learned a lot of formulas and identities in grade IX and grade X, especially in trigonometry and coordinate geometry."

Explaining the scope of the content, teacher RT2 from Rho School clarified that

> "Course of IX and X provides some ground to A-level in some five-six topics and not much sufficient for other topics, though there is an overlay in some chapters."

Furthermore, regarding the scope of the curriculum, RT1 explained that:

> "Trigonometry is over-emphasized in IX and X curricula. A-level trigonometry is quite easier for our students. But there are still some concepts that are unfamiliar to students. Chapters like the general solution, curve sketching, inverse function, and some standard form of trigonometry are quite unfamiliar to the students. Also, grade IX-X curriculum doesn't have mechanics portion in mathematics and does not create a background, so they struggle more in mechanics in A-level."

Teacher RT1 focused on the overemphasis on trigonometry in grades IX and X and very poor foundation on the basic concepts of graphs and curves in the chapters; function, trigonometry, and vector. RT1 revealed the obvious reason for the transitional gap in mechanics as students do not have a previous background in mechanics in their grades IX and X.

Concerning to continuity of the curriculum with CDC IX-X curriculum and the gap/overlay it persists, BT2 said:

Table 2. Areawide distribution of the content

Grade X mathematics curriculum (Nepal)	CAIE A-level		
	Pure mathematics	**Statistics**	**Mechanics**
	P1	**S1**	**M1**
Compulsory maths	-Quadratics	-Representation of data	-Forces & equilibrium
-Set	-Function	-Permutations & combinations	-Kinematics of motion in a straight line
-Arithmetic	-Coordinate geometry	-Probability	-Newton's laws of motion
-Mensuration	-Circular measure	-Discrete random variables	-Energy, work, & power
-Algebra	-Trigonometry	-The normal distribution	**M2**
-Geometry	-Vector	**S2**	-Motion of a projectile
-Trigonometry	-Series	-The Poisson distribution	-Equilibrium of a rigid body
-Statistics	-Differentiation	-Linear combinations of random variables	-Uniform motion in a circle
-Probability	-Integration		-Hooke's law
Optional maths	**P3**	-Continuous random variables	-Linear motion under a variable force
-Function	-Algebra	-Sampling & estimation	
-Polynomial	-Logarithmic & exponential functions	-Hypothesis tests	
-Matrices	-Trigonometry		
-Trigonometry	-Vector		
-Vector	-Differentiation		
-Transformation	-Integration		
-Statistics	-Numerical solution of equations		
-Linear programming & graphs	-Differential equations		
-Coordinate Geometry	-Complex number		

> "When students join CAIE A-level after studying grade X curriculum, they have to face some difficulties in their studies due to transitional gaps between curricula. The reason behind this is A-level curriculum is made as to the continuation of the IGCSE program of Cambridge international examination, the content and the coverage of which is not similar with our curriculum."

Through this statement, BT2 explained that the transitional gap is an expected constraint when we transit from one system to another and always comes up with difficulties in different parts of the school life of students. In addition to this BT1 said:

> "The chapters included only in compulsory mathematics of grades IX and X are found to be quite insufficient to study A-level mathematics. Different areas such as function, curve sketching, coordinate geometry, circular measure, vector, and series are found to be new to the students without optional mathematics in grades IX and X."

The above explanations have given a clear sense that there is a significant gap in curriculum continuity for students without optional mathematics in grades IX and X. Meanwhile, gaps related to curriculum continuity are not much significant to students who took optional mathematics in grades IX and X. These students have to struggle more in some areas such as representing in graphs, comprehending the problems in mathematical form, and the applications of mathematical knowledge.

Transiting from one curriculum to another brings discontinuity of the content. Students may lack the prior knowledge required to study another curriculum of a higher level. Regarding the content gap RS1 explained:

> "The chapters related to curve and its sketching are challenging to us because in our grade IX and X curriculum the graph work like sketching lines and curve, representing different values in the graph is not much focused. Though I always scored good grades on different tests, I find chapters such as vectors, mechanics, and statistics are really difficult."

According to RS1, the graph works are less focused in the grade IX-X curriculum. It is not much familiar to the students so, as explained by Bridges' students feel drained because in this process psychological realignments and re-patterning take place.

Gaps in Assessment System

Assessment system and testing is another domain of the transitional gap. The assessment system for grades IX-X (SEE) differs from the assessment system in A-level. Regarding the assessment system, RT2 said:

> "The difficulty that A-level student has to face is basically on the question pattern asked in the test. The questions are completely new to the students because they are not adopted directly from the textbook. Students who have transited from IGCSE or O-level do not have a problem related to question pattern or question setting while transiting to A-level."

So, the transition becomes more difficult because of the differences in the assessment system as well. Furthermore, BT2 compare the assessment system in terms of understanding and knowledge construction and said:

> "In A-level, assessment part is more focused on whether the core content students have understood or not whereas assessment process in grade X is more mechanical."

This explanation clarified that the grade IX and X assessment system is found to be more mechanical. It is due to the type of questions asked in the exam. It is understood that questions in the SEE exam are repeated after some years. **Figure 3**, for instance, shows the repeating questions in the SEE exam in the stated years.

Concerning the assessment system as the source of the transitional gap, teacher BT1 had explained:

$x^3-3x^2-10x+24=0$	[2065 R, 2067 R', 2072 R']	E.	$x^3-6x^2+11x-6=0$	[2066 S, 67 S, 68 S', 73R']
$x^3-4x^2+x+6=0$	[2070 R']			
$2x^3+3x^2-11x-6=0$	[2059 R, 2069 S, 2071R']	B.	$2x^3-3x^2-11x+6=0$	[2062 R, 2070S']
$2x^3+x^2-2x-1=0$	[2060 R]	D.	$2x^3-3x^2-3x+2=0$	[2060 S, 2065 M]

Figure 3. SEE questions

Question from textbook	Question in SEE exam-*2073B.S*
अभ्यास 8.1 म.स. निकाल्नुहोस् : (26) x^4+x^2+1, x^3+1 र x^3-x^2+x	११. म.स. निकाल्नुहोस् (Find the H.C.F of) : m^3+1, m^4+m^2+1, m^3-m^2+m

Figure 4. Question from the textbook and SEE examination-2073 B.S.

> "A big difference we find in our grade IX-X curriculum and A-level curriculum is due to the differences in assessment technique. As far as the pattern of question and their marking system is concerned, it has a lot of differences. At A-level, it considers the error carried forward rule whereas in grades IX and X error is not carried forward. It means that the first error is considered a final error in SEE. Also, the A-level has a percentile grading system whereas IX-X has a percentage grading system. "

From BT1 narratives it can be concluded that there are many differences in the assessment system between these two curricula. These differences are identified as one of the major sources of the curricular gap.

Regarding students' grading system, the SEE board describes students' performance in a percentage grading system divided into nine different grades namely A$^+$, A, B$^+$, B, C$^+$, C, D, E, and N. CAIE A-level board has a percentile grading system. It determines minimum thresholds for every examination and the minimum raw mark required is determined for seven different grades namely A*, A, B, C, D, E, and U.

Assessment technique is another cause to bring transitional gap. The differences in the assessment techniques raise different issues in students' transition. While talking about assessment technique RT2 explained:

> "Assessment method basically depends upon how the question is asked in final exams such as SLC and CAIE A-level board. It is also guided by textbooks and other resource materials provided for teaching. The questions in A-level are quite comprehensive and targeted for objective judgment about how well students have understood the concepts and its application."

Here, we can see the differences in assessment techniques as one of the most important factors for the transitional gap. In this regard, BT1 explained:

> "There are some but significant differences in the pattern of questions asked in the examination and their marking system. A-level considers error carried forward rule whereas in grades IX and X error is not carried forward. It means that, while marking an A-level answer sheet, generally, when students come to the wrong conclusion in one part of the question and use it to calculate another part of the question and provided that the second part is correct under error in the first part, then the student gets full marks in the second part. This kind of process is not available in our grade IX and X curriculum. In grade IX and X curriculum, the first error is considered as final error."

This statement explained the feature of the A-level mathematics paper marking scheme which considers the error carried forward rule means that marks for a question are awarded if a candidate has carried an incorrect value forward from earlier working, provided the subsequent working is correct.

In connection with the process of selecting test items and the type of question asked in the exam, BT2 explained:

> "Questions in the grade IX and X exams are directly taken from the book or are quite familiar to the students but A-level questions are not exactly adapted from the textbook. It is prepared in such a way that it objectively can measure the desired competency."

Likewise, RS1 explained:

> "In A-level examination questions are not directly adapted from the textbook but are something completely new."

Similarly, the following set of questions taken from SEE and grade X textbook of mathematics further explains the situation stated above clearly.

This further clarifies that questions in the SEE exam are directly adopted either from the book or the pattern already designed from the book which implicates that student witness familiar questions in the SEE exam (**Figure 4**). But, the questions in A-level are unfamiliar to the students, and mugging up is highly discouraged in the A-level exam. It rather aims to enhance, nourish, and demand a creative approach to the given task (Awasthi et al., 2072 B.S.).

FINDINGS AND DISCUSSIONS

This study was focused to examine the transitional gaps from grade X to CAIE A-level in the context of the school's mathematics curriculum. It also tried to identify the ways to bridge the transitional gap. The transition and transitional gap were discussed with theories of transition. The gap in the content and assessment system were identified. After analyzing and interpreting the result following findings were obtained.

It is found from the result that, the transition involves the process of realignments and re-patterning when students shift from one system to another. A single model of transition cannot stand alone as a comprehensive description of the full array and complexity of transitions. In order to understand the transition process, one should have multiple perspectives. Similarly, the three steps; endings, neutral zone, and new beginnings of Bridges' transition model are found to be quite relevant in this transition process.

The transitional gap is found to be big in some of the chapters such as vectors, probability, curve sketching, mechanics, algebraic geometry, and statistics. The study of optional mathematics in grades IX and X has some support in the process of students' transition. Transition is also found to be more difficult, for the student without optional mathematics in their grades IX and X. At the same time, students without optional mathematics require a high level of passion for their studies. It is also found that the transition problem is mainly related to the physical interpretation of numerical problems into graphs and diagrams. So, integrating more graphs and diagram-based activities makes students' transition easier.

Both teachers and students realized that when transiting from SEE to CAIE A-level has substantial transitional gaps in the assessment system. It is also found that students studying at the A-level tend to opt for a change in the grade-IX and X assessment systems. They also want that the current grade IX-X assessment system, especially, the questions asked in the examination should not encourage rote memorization.

Discussions

Transition is the capacity to navigate change. To understand the transition process, it should be viewed from multiple perspectives. Bridges' transition model and Schlossberg's transition theory are found to be very useful to study transitional gaps while transiting from the SEE level to the A-level. The study identified different domains of the transitional gap. They were related to the content, pedagogical practices, and assessment systems. The transitional gap is inevitable when transiting from one curriculum to another curriculum. It is because schools cannot prepare a truly universal student which is suitable for everything. So, when moving from one system to another system, there is always a gap that is something that cannot be avoided.

Transition to A-level mathematics course was found to be challenging for the students who studied grades IX and X of the CDC curriculum. It is because, in grades IX and X, students' work is basically limited to what their teachers assigned them to do from their textbook and almost all of the questions in the exam are from the same. In contrast, to prepare for A-level course students have to go through different study materials such as books, video tutorials, past papers, and even the different web pages to make their understanding of the subject. Students have felt that the way they study till grade X is like spoon-feeding. There is a lot of work to put in by the students themselves in A-levels. So, it's difficult for students to go from spoon-feeding to preparing the study materials themselves and then practicing them for better understanding and better result.

Another source of the gap is the content itself and related to the graphical representation of the mathematical concepts. Students without optional mathematics in their grade-X has to struggle a lot in almost all of the chapters. Regarding the concern of transition of students who studied grade-X without optional mathematics, teachers explained that these students' transition mostly depends upon their intelligence, dedication, and passion of the students. Furthermore, to have a better transition for students without optional mathematics, teachers suggested that students need to have a positive attitude and they simply need to work a little harder in those topics that were there in optional mathematics, especially in trigonometry and coordinate geometry.

In general, there is substantial agreement among the respondent teachers that there is often a decline in achievement if the students following the transition. According to students, their transition to A-level would be easier if their teachers start preparing them from grade IX and X itself. This means, in grades IX and X assigning students more challenging revision work which is like A-level strategies, doing that student get the opportunities to familiarize themselves with the concept required for A-level.

It was found that participant schools did not have any stated transition strategies to ease the transition from SEE to A-level. Teachers who teach at both A-level and grade IX-X are found to be more supportive in the student transition process than the teachers who are teaching A-level only. Teachers can identify the transitional gap and they can determine what needs to be done to make the transition easier, which helps to maximize pupils' potential. An A-level teacher claimed that effective transitions in the classroom help teachers to minimize disruptions and behavior problems, maximize instructional time, and maintain optimal learning conditions.

According to teachers' perspectives, the transition will be easier if students are self-motivated and self-reliant. Also, students who remain flexible and use multiple strategies can better manage their transition process, because the transition is an inner psychological process.

CONCLUSIONS

Teachers and the entire school system have very important roles in students' transition from SEE to A-level. Teachers teaching A-level mathematics require a substantial knowledge of grade IX-X mathematics, which may help them help their students transit more easily. As mathematics is a body of knowledge with an interconnected chain of logic and arguments, transition management in mathematics curriculum is important. The curriculum itself is the major source of the curricular gap. Integration of learning opportunities from a global curricular context helps bridge the curricular gap. As a popular saying states that 'well plan is half done.' this means a well-prepared planned transition strategy can better ease students' transition from SEE to CAIE A-level.

Finally, the transition is viewed as one of the causes of the hindrance to students' achievement. So, the role of the teacher is crucial to formulate effective transition strategies that may turn transition into opportunity in students learning endeavors.

Recommendations

Major findings and conclusions led to suggest the following recommendations.

It is suggested to the curriculum planners to consider learning opportunities provided by other curricula in the world because it is a must in this globalized context. If schools running the A-level program were prepared with transition strategies, it would be easy to manage students' transiting process. A passionate learner can better cope with the transition so, schools should facilitate students to develop a passion to learn mathematics. Mathematics teachers should seriously consider the diversity of students in the classroom and make suitable strategies to make every student's transition easier.

It is strongly suggested that schools having both the grade X and the A-level program should conduct information and knowledge sharing sessions among the mathematics teachers teaching in classes IX-X and A-level, which may largely help their students transit easily. It would be easy to identify the areas of difficulties of the students in advance if schools conducted an aptitude test for those who want to enter the A-level. A-level schools should organize different information-sharing sessions about the overall A-level curriculum in general and the mathematics curriculum specifically for the students studying in grade X.

Recommendations for Further Research

This study focused on students' transition from the SEE level to the A-level in mathematics Curriculum. This study opens further studies on students' transitions to other levels and subjects.

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