

국제 바칼로레아 커리큘럼의 창의적 음악 작곡*

- 인지 발달 이해를 위한 피아제적 접근 -

Creative Music Composition in the International Baccalaureate Curriculum:

A Piagetian Approach to Understanding Cognitive Development

빈센시아 구니타** · 물안토*** · 엔다 위디아스투티****

Vinsensia Gunita^{ID} · Mulyanto^{ID} · Endang Widiyastuti^{ID}

Abstract This research investigates the creative process in music composition among International Baccalaureate Diploma Program students, specifically those, three students in Higher Level (HL) and one student in Standard Level (SL) music courses. Utilizing Jean Piaget's cognitive theory, which includes concepts like assimilation, accommodation, and equilibration. The study analyzes the creative process across four stages: Musical Practice (composition creation), Informed Musical Practice (acquiring relevant knowledge), Informed-Reflective in and Through Practice (structured reflection), and the final composition. A qualitative approach with Art Practice as Research is employed, involving observations, interviews, and explorations with four students (three HL and one SL). The findings show that, students start with prior knowledge (assimilation) and adapt (accommodation) during music composition assessments. They endure challenges to reach their own equilibrium, which varies for each student and is reflected in their IB assessment results.

Key words: International Baccalaureate curriculum, music composition, Piaget's cognitive

초록 이 연구는 국제 바칼로레아 디플로마 프로그램 학생들 중에서 특히 고급 과정(Higher Level/HL) 학생 3명과 일반 과정(Standard Level/SL) 학생 1명을 대상으로 음악 작곡에서의 창작 과정을 연구하였다. 이를 위해 동화, 조절, 그리고 평형화와 같은 개념을 포함하는 장 피아제의 인지 이론을 활용하였다. 창작 과정은 네 가지 단계로 분석되며, 이는 음악 실습(작곡 창작), 정보에 기반한 음악 실습(관련 지식 습득), 실습을 통한 구조화된 반성, 그리고 최종 작곡으로 구성된다. 이러한 과정을 탐구하기 위해 예술 실천을 연구 방법으로 활용한 질적 접근법이 사용되었으며, 세 명의 HL 학생과 한 명의 SL 학생을 관찰하고, 인터뷰하며 심층적으로 연구하였다. 연구 결과, 학생들이 이 기존의 지식을 바탕으로 시작하여(동화) 작곡 평가 과정에서 적응(조절)하며, 각자 평형에 도달하기 위해 도전에 직면하고, 이는 IB 평가 결과에 반영됨을 보여준다.

주제어: 국제 바칼로레아 교육과정, 음악 작곡, 피아제의 인지 이론

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** First author, E-mail: mulyanto@staff.uns.ac.id

Professor, Sebelas Maret University, Sutami Street, Number 36A, Jebres, Surakarta, Central Java 57126, Indonesia

*** Co-author, E-mail: endang_w@staff.uns.ac.id

Lecture, Sebelas Maret University, Sutami Street, Number 36A, Jebres, Surakarta, Central Java, 57126, Indonesia

**** Corresponding author, E-mail: vinsensia.putri@student.ac.id

Student Researcher, Sebelas Maret University, Sutami Street, Number 36A, Jebres, Surakarta, Central Java, 57126, Indonesia

I . Introduction

Music education is important for students' holistic development. In the context of international education, the International Baccalaureate (IB) curriculum, initiated in Geneva, Switzerland, in 1968, was created to prepare students for university by nurturing their passion and talents. This research specifically focuses on the Diploma Program. According to data from IB Organization, the number of schools applying for IB has increased since 2007, with more programs for primary and middle years, though the Diploma Program remains the most popular. It is designed for students aged 16 to 19., a period when students develop abstract thinking and high idealism while transitioning to adulthood, shaping their moral values to adapt to modern times (Enloe, 2019). Studies show positive outcomes in students' cognitive development through the IB Curriculum, such as improved critical thinking, problem-solving skills, and creativity over a school year (Realyvásquez et al., 2020). Additionally, social skills, emotional intelligence, and self-efficacy have been linked to the Middle Year Program's collaborative and holistic approach (Conger, Kennedy, Long & McGhee, 2021).

The IB is a global organization, focused on lifelong learning and promoting international mindedness rather than directly emphasizing global citizenship (Edwards, 2020). In the IB Diploma Program (DP), students choose six subject, there at the Higher Level (HL) and three at Standard Level (SL), from six subject group: Language and literature, Language Acquisition, Individuals and Societies, Sciences, Mathematics, and the Arts. This research focuses on the music subject from the Art Group. In the IB Music course, students learn to become researchers, creators, and performers. They explore four Area of Inquiry (AOI): Music for Sociocultural and Political expression, music for listening, music for movement and dramatic impact, and music technology (International Baccalaureate Organization. Diploma Program Music Guide, 2022).

When creating music, "knowledge" plays an important role, assuming everyone has talent. Other aspect like "experience" and "aesthetic sensibility" depend on each person's effort patience. A musical composition is considered complete when it meet key criteria, such as rhythm, melody, harmony, and timbre (Heni, 2010). Compositions don't have to follow traditional forms, especially with the growing use digital technology in calssrooms, which allows students to experiment with new techniques (Norman, 2023). After grasping the basic elements, a composer chooses the best medium to express their ideas (Yudana & Haryanto, 2021). Music is more than entertainment; it aids in intellectual and emotional development, with each composer finding their unique way of creating time (Putra, 2019).

This research focuses on students who took the music course at Pradita Dirgantara High School in the 2022/2023 school year. The school, established in 2018 and located in Boyolali Regency), is the only one in Central Java using the IB Curriculum. These students chose the music course out of interest, without knowing exactly what they would learn. One of the key topics known is music theory. Music theory is essential for composers, as it helps them understand musical elements like notation, keynotes, time signature, and chord progressions (Jati, Bramantyo & Tyasrinestu, 2024; Putra, Putra & Ferdian, 2018). Although learning music theory can be challenging, it is seen as a crucial foundation for well-rounded music education (Yuniar, Sitoena, Matius & Obed, 2022).

Learning to play a musical instrument can boost intellectual development, especially in spatial thinking (Hallam, 2010). According to cognitive development theory, music learning and music theory can have a significant effect on students' cognitive abilities, which relate to how the brain processes and thinks (Leny, 2020). At Pradita Dirgantara High School, students are given the freedom to understand their educational needs and choose their future study paths. The well-designed curriculum encourages students to express opinions, solve problems, and make decisions, all of which support their personal growth and future success (Supriyoko, 2022). The school uses a mixed curriculum, combining the national curriculum with IB, Cambridge, and ASPnet, which is considered more efficient than using only the national curriculum (Akuba, Sinaga, Ugut & Budiono, 2021).

II. Literature Review

1. Jean Piaget's cognitive theory

Jean Piaget was a psychologist and philosopher who became renowned in Geneva, Switzerland. He was a significant inspiration in the field of education, particularly influencing the development of international curricula (IB School Discover Hong Kong). Born on August 9, 1896, Jean Piaget was the first psychologist to research child development. He had a special focus on understanding the extent of children's comprehension and was recognized as a pioneer in psychology in the 20th century (Britannica, 2023).

(a) Development of Cognitive Abilities

Jean Piaget divided his study into four stages:

- Sensorimotor (0-2 years)

In this initial stage, children use their senses to learn new things, and this stage is also dominated by movement. Children begin to develop reflexive movements and heightened sensitivity; they resist having objects replaced by others, are actively engaged with their thumbs, and exhibit high mobility, such as starting to crawl and walk

- Pre-Operational (2-7 years)

In this stage, children pay more attention to symbolic matters. They tend to imitate others and have a high level of curiosity.

- Concrete Operation (7-11 years)

After going through the previous two stages, children begin to think logically about activities they encounter in their daily lives.

- Formal Operational (12 years - adulthood)

This stage indicates that children have started thinking abstractly and are inclined towards deductive reasoning. As they approach adulthood, their abstract thinking develops further, making them scientific thinkers. They begin to form identities and characters while continuing to develop morals to keep up with the changing times.

(b) Processes or Changes in Cognitive Structure

- Assimilation Process

The process of integrating new information into the existing cognitive structure in the child's mind (child's background)

- Accommodation Process

The process of modifying the cognitive structure to incorporate (new information)

- Equilibration Process

The continuous adjustment between assimilation and accommodation. If this stage is successful, a balance in thinking is achieved.

This study talk about equilibrium or balancing, this internal factor, including how they develop on social health, which involves a person's relationships with others and form the foundation for setting goals, finding motivation, seeking self-fulfillment, and helping others (Kosherbayeva : 2024).

2. Diploma Program in the curriculum

The Diploma Program (DP) is a challenging pre-university course designed for students aged 16 to 19, aimed at fostering knowledge, curiosity, compassion, and an understanding of intercultural differences. It emphasizes open-mindedness and the ability to evaluate diverse perspectives. The curriculum includes six academic areas, encouraging the study of multiple fields simultaneously. Student typically study two modern languages (or one modern and one classical), asocial science, experimental sciences, mathematics, and a creative art. This broad range of subject effectively prepares students for university. Students choose on subject from each area, with flexibility to replace an arts subject with another from a different area. They take three to four subjects at the Higher Level (HL) and rest at the Standard Level (SL), with HL subject requiring 240 teaching hours and SL 140. HL subjects are studied more deeply, and skills like critical thinking and analysis are developed are both levels. External assessments evaluate students' abilities at the end of the program. Pradita Dirgantara High School became an IB school offering the Diploma Program in 2022, after being a candidate school in 2021.



[Figure 1] Diploma program model

3. Group 6 : Music

Students who choose Group 6 are those with a strong passion for the arts. One of the subjects in this group is music, which aims to:

- Explore various musical contexts and make connections with, and between, different practices, conventions, and forms of musical expression.
- Acquire, develop, and experiment with musical competencies through a range of musical practices, conventions, and forms of expression, both individually and collaboratively.
- Evaluate and develop critical perspectives on their own music and the works of others.

In IB Music, students will take on roles as researchers, creators, and performers. The IB music syllabus outline is as follows :

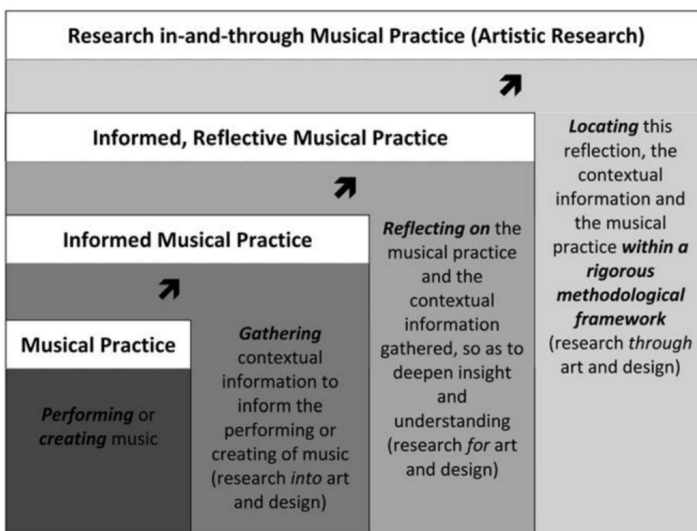
Syllabus component
Exploring music in context When exploring music in context, students will learn how to engage with a diverse range of music that will broaden their musical horizons and provide stimuli to expand their own music-making. Students will demonstrate diversity and breadth in their exploration by engaging with music from the areas of inquiry in personal, local and global contexts.
Experimenting with music When experimenting with music, students connect theoretical studies to practical work and gain a deeper understanding of the music they engage with. Through this theoretical and practical work as researchers, creators and performers, students will learn to experiment with a range of musical material and stimuli from the areas of inquiry across local and global contexts.
Presenting music When presenting music, students learn to practise and prepare finished pieces that will be performed or presented to an audience. In working towards completed musical works, students expand their musical identity, demonstrate their level of musicianship, and learn to share and communicate their music as researchers, creators and performers.
The contemporary music maker (HL only) Music at higher level (HL) builds on the learning of musical competencies and challenges students to engage with the musical processes in settings of contemporary music-making. For the HL component, students plan and collaboratively create a project that draws on the competencies, skills and processes in all of the musical roles of the music course, and is inspired by real-life practices of music-making.

[Figure 2] Diploma program model

III. Method

1. Art practice as research

This study uses a qualitative method focused on art practice as research. According to Sullivan (2010), creating art is a form of research that merges educational techniques with art composition. The researcher actively engages in the music-making process to analyze how HL and SL music students create, applying Jean piaget's cognitive theory. Murwanti (2017) notes that art practice as research helps build knowledge through creation or presentation. The study looks at idea developments, implementation, and theory exploration. The creative process involves stages: students create or perform music, gather information for their compositions, reflect on their work, and write a reflection based on their knowledge. Piaget's theory describes this process in three phases: assimilation, accommodation, and equilibration, leading to balanced thinking. This study examines the creative processes and outcomes of four IB music students (three in HL, one in SL), collecting data through observations, interviews, and exploration to understand their artistic development. The study analyzes the creative process across four stages: Musical Practice (composition creation), Informed Musical Practice (acquiring relevant knowledge), Informed-Reflective in and Through Practice (structured reflection), and the final composition.



[Figure 3] Creative process in art practice as research

2. Background of the HL and SL IB music students

Four student without prior IB experience began the music unfamiliar with its content. Here is the educational background of the students :

<Table 1> Education history and the applied curriculum

Name	Level	School Name and Curriculum
HL Student A	Elementary	Melati Don Bosco Pondok Indah private elementary school / National curriculum
	Junior	85 Jakarta Selatan junior high school / National curriculum
HL Student B	Elementary	16 Jakarta Public Islamic elementary school/ National curriculum
	Junior	9 Jakarta junior high school / National curriculum
HL Student C	Elementary	Glagah public elementary school / National curriculum
	Junior	Kesatuan Bangsa Yogyakarta junior high school / Cambridge
SL Student A	Elementary	Nogopuro public elementary school / National curriculum
	Junior	1 Yogyakarta junior high school / National curriculum

IV. Results

1. The analysis of the creative process

There were two composing assessments : an external assessment called Presenting music, which had different scores for HL and SL students, and an internal assessment for HL students only. The study analyzes the creative process across four stages: Musical Practice (composition creation), Informed Musical Practice (acquiring relevant knowledge), Informed-Reflective in and Through Practice (structured reflection), and the final composition.

<Table 2> Presenting music assessment data HL student A

Creative process	Timeline	Result
Musical practice	2 nd week on December 2023 to 2 nd week on January 2024	While creating this composition, the student shared feeling about the holiday, feeling indifferent because the student spent it at home.
Informed musical practice	2 nd week on February 2024	Inspired by Indonesia musician Sal Priadi, the student chose the guitar as the main instrument. The student learned a new guitar-playing technique and writing it in a scoring application
Informed-reflective in and through practice	3 rd to 4 th week of February 2024	During this process, the student relized that the pattern created had too much repetition
Final composition.	March 2024	 [Figure 4] QR code for audio “Flat day” composition 1.53 - 3.19. minutes

<Table 3> Presenting music assessment data HL student B

Creative process	Timeline	Result
Musical practice	4 th week of December 2023	<i>Odong-odong</i> is a popular children's attraction in Indonesia, but the student noticed the music played on them is often not kid-friendly. This inspired student HL B to compose a simple, cheerful song using BandLab
Informed musical practice	1st to 3 rd week of January 2024	The student learned composition using EDM music, extensively researched references, and continually practiced creating music beat.
Informed-reflective in and through practice	4 th week of January 2024	The student fully understood that the goal of the beat they created was to make it easy to remember and appealing to children.
Final composition.	February 2024	 [Figure 5] QR the audio for the “Odong-odong” composition, 1.30 - 2.33 minutes

<Table 4> Presenting music assessment data HL student C

Creative process	Timeline	Result
Musical practice	3 rd week of December 2023	The song expresses the feeling of achieving goals, inspired by “ <i>running the wind.</i> ” From Ghibli Studio.
Informed musical practice	4 th week of December 2023	HL Student C created a piece that combines digital music and electric guitar. It’s in the A major scale with chords B major - C# major - D# minor, made using GarageBand
Informed-reflective in and through practice	4 th week of December 2023	The student learned to explore melodies an repeatedly practiced them on the electric guitar
Final composition.	March 2024	 [Figure 6] Audio result

<Table 5> Presenting music assessment data SL student A

Creative process	Timeline	Result
Musical practice	2 nd week of August 2023 to 4 th week of September	Using GarageBand, they created a piece inspired by their daily environment. This composition has an imaginative theme, telling the story of a witch who discovers a secret
Informed musical practice	October 2023	For the vocal part, SL Student A used Italian lyrics to create a narrative through music and melody.
Informed-reflective in and through practice	November - December 2023	The student fully realized that the vocal articulation and singing technique were still not optimal
Final composition.	January 2024	 [Figure 7] The Saga of the Witch

The presenting music assessment includes both creating and performing, but this research focuses on the creating part, specifically the students, music compositions based on their real-life experiences. HL Student A used all four areas of inquiry, highlighting different types of Indonesian music. HL Student B also explored these areas, looking at music technology and including personal, local. And global contexts, mainly using the piano for classical music. HL Student

C did not explain the purpose of the composition. SL Student A, with a strong background in classical and opera music, also used all four areas of inquiry and the student music technology knowledge. Below is the data for the contemporary music maker (HL only).

<Table 6> Contemporary music maker data HL only - HL student A

Creative process	Timeline	Result
Musical practice	2 nd week on December 2023 to 2 nd week on January 2024	HL Student A wanted to create music that makes studying feel fun instead of stressful. Using GarageBand, the student produced lo-fi music to go to with a time-lapse study video, aiming to match the visual and audio for relaxing experience.
Informed musical practice	2 nd week on February 2024	In the process of building the composition, the student initially overlooked requesting the lo-fi music references that the collaborator frequently listened to.
Informed-reflective in and through practice	3 rd to 4 th week of February 2024	During the reflection phase, the student felt that the project was a success. However, there are still areas for improvement, particularly in communication and teamwork between the composer and the collaborator, as they overlooked the reference to lo-fi music
Final composition.	March 2024	 [Figure 8] QR code the outcome or soft music for studying

<Table 7> Presenting music assessment data HL student B

Creative process	Timeline	Result
Musical practice	4 th week of December 2023	In this project, HL student B aimed to introduce Indonesia's traditional culture to high school students through a musical adaptation of the <i>Si Pitung</i> folktale, focusing on piano compositions and traditional elements.
Informed musical practice	1st to 3 rd week of January 2024	After completing the original dialogue composition, the student rehearsed the musical roles with the theatre team.
Informed-reflective in and through practice	4 th week of January 2024	In the reflection phase, the student noted that their musical successfully conveyed the message to preserve and raise awareness of traditional folktales, particularly among senior high students as the primary target audience.

<Table 7> Continued

Creative process	Timeline	Result
Final composition.	February 2024	 [Figure 9] QR code the outcome of the original song for the dialogue
		 [Figure 10] QR code musical live performance
		 [Figure 11] QR code musical live performance

<Table 8> Presenting music assessment data HL student C

Creative process	Timeline	Result
Musical practice	3 rd week of December 2023	In this composition, HL Student C aimed to use music as a medium to raise awareness about nature conservation. Additionally, their musical goal was to develop composition skills, particularly in modern music, by incorporating electronic and guitar instruments.
Informed musical practice	4 th week of December 2023	This composition is played in the C major scale with a C-G-Am-F chord progression. After creating the chord progression using plug-in keys, the student added a layer of strings.
Informed-reflective in and through practice	n/a	The student did not go through this process, and there was no evaluation or reflection conducted, either with the teacher or with the collaborators on this work.

<Table 8> Continued

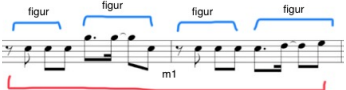
Creative process	Timeline	Result
Final composition.	March 2024	 [Figure 12] Code the composition result from HL Student C

2. The analysis of music composition

After the students have completed their compositions, they will be summarized in a table that includes the following elements:

- Song Form: sections of the song, such as verses or choruses
- Song Motif: melodies present in the musical phrase, elements that are repeated
- Rhythmic Pattern: duration of the melody from each musical phrase, or the length of the notes.

<Table 9> Contemporary music maker data HL only - HL student A

Composition	Result	Evidence
Music form	Student HL A: Two-part song form Student HL B: One-part song form Student HL C: Two-part song form Student SL A: Two-part song form All works are the same in terms of repetition.	Examples of figures/rhythmic patterns that are commonly found throughout the compositions of HL/SL music students Example work: HL student B on presentation :  The same rhythmic pattern is shown in the figure (blue markings) and altogether forms motif 1/m1 (red line).
Song motif	All motifs in the students' compositions show motifs that are not yet complete, with imbalanced motifs that still tend to be abstract.	Differentiation between 2 motif motif 1/m1 

<Table 9> Continued

Composition	Result	Evidence
		motif2/m2 There is a clear imbalance, as shown by the number of measures: motif 1 consists of 2 measures, while motif 2 consists of only 1 measure, which results in an incomplete musical phrase.
Rhythm	The rhythmic pattern uses time signatures of 4/4 and 3/4. In the 4/4 time signature, there are 4 notes with a value of ♩ in each measure, while in the 3/4 time signature, there are 3 notes with a value of ♩ in each measure.	Example of the composition: “A Flat Day” uses a 4/4 time signature. Example of the composition: “Saga of the Witch,” which uses a 3/4 time signature.

3. Analysis the cognitive Jean Piaget’s theory

Here is the summary of the analysis that has been compiled in the following table :

<Table 10> Jean Piaget’s analysis

Criteria	Jean Piaget cognitive development	Description
A	Cognitive skills	The samples are in their formal operational phase (12 years old to adult). They begin to develop abstract thought, base their compositions on deductive reasoning (general to specific), develop scientific thinking, create identities and characters that influence their musical compositions, and start moral development.
B	Adaptation	Findings: Passive adaptation (autoplastic): confirming the norms and values of society. Active adaptation (alloplastic): changing their environment based on their desires.

In Jean Piaget's cognitive process, students begin with assimilation (prior knowledge). During the assessment process in music composition, they adapt through accommodation, making various adjustments to reach their goals. Students endure challenges to achieve their own sense of equilibrium. However, this cannot be called a complete equilibrium because each student reaches their unique balance, which is reflected in the results they obtain from the IB assessment.

1) Assimilation

Assimilation is the process of incorporating new information into an existing cognitive structure. The research found the following regarding the students' backgrounds:

1. SL Student A did not receive the IB curriculum at their previous public school and learned music on their own (self-taught).
2. SL Student B also did not have IB curriculum experience at their previous public school but took music courses from age 5 to 14, joined Giem @Wad Piano Entertainment at 13, and performed for the Indonesian Embassy in Singapore. This student won the Gold Rhapsodie Indonesia Piano Competition in 2019 and the Indonesia Winter Music Festival in 2021.
3. HL Student C had never received the IB curriculum at their previous private school, which followed the Cambridge curriculum. They learned music through self-taught methods and family mentoring.
4. SL Student A had not received the IB curriculum during their study years from 2008 to 2013 in their previous public school. However, they won a bronze medal at the Yamaha Annual Competition.

2) Accommodation

The adaptation to new surroundings showed that HL student A and B applied passive adaptation, while HL student C and SL A applied active adaptation. Based on data from the supervising teacher, student HL and B completed all targets according to the timeline in the IB curriculum and understood the assessments conducted. In contrast, students HL C and SL A still did not comprehend the assessments and did not complete them according to the timeline.

3) Equilibrium

The IB scores the students received serve as an indicator of their achieved equilibrium. Over the two-year process, each student reached their own equilibrium. This is evidenced by the IB assessment scores obtained.

4. IB result score for presenting music and contemporary music maker HL only

The HL and SL music students conducted their external and internal assessments on July 5, 2024. The external assessment for both SL and HL students was the presenting music course, while the contemporary music maker project served as the internal assessment exclusively for HL students. These assessments were submitted to the examiner, and the students received scores based on their performance throughout the process.

International Baccalaureate

Component results

Session	MAY 2024
School	062035 SMA Pradita Dirgantara

MUSIC HL PRESENTING MUSIC in ENGLISH		Grade boundaries based on moderated mark		
		Grade	Minimum	Maximum
		1	0	5
		2	6	10
		3	11	16
		4	17	21
		5	22	27
		6	28	32
		7	33	38
		Raw mark	Moderated mark	Scaled mark
062035 0088 (lcm147)	Siswa HL B		19	15
(DIPLOMA)				
062035 0075 (lcm134)	Siswa HL A		15	11.842
(DIPLOMA)				
062035 0084 (lcm143)	Siswa HL C		12	9.474
				Grade

[Figure 13] Scoring for presenting music from the HL IB music students in 2024

The highest score in this curriculum is 7, and the HL external assessment accounts for 30% of the final grade. Based on the results, HL Student B received the highest score with a moderated mark of 19, earning a Grade 4. This was followed by HL Student A, who received a moderated mark of 15 for a Grade 3, and HL Student C, who received a moderated mark of 12, also resulting in a Grade 3.

Below are the scores for the SL students:

International Baccalaureate

Component results

Session	MAY 2024
School	062035 SMA Pradita Dirgantara

MUSIC SL PRESENTING MUSIC in ENGLISH	Grade boundaries based on moderated mark		
	Grade	Minimum	Maximum
	1	0	5
	2	6	10
	3	11	16
	4	17	21
	5	22	27
	6	28	32
	7	33	38
	Raw mark	Moderated mark	Scaled mark
062035 0036 (lcm082)	Siswa SL A	(DIPLOMA)	
	25	26.316	5

[Figure 14] Scoring for presenting music from the SL IB music students in 2024

The external assessment for presenting music for SL accounts for 40%. SL Student A received a moderated mark of 25, earning them a Grade 5. The internal assessment of contemporary music maker is only applicable to HL students. Below are the IB scoring results:

International Baccalaureate

Component results

Session	MAY 2024
School	062035 SMA Pradita Dirgantara

MUSIC HL THE CONTEMPORARY MUSIC-MAKER in ENGLISH

Grade boundaries based on moderated mark

Grade	Minimum	Maximum
1	0	3
2	4	7
3	8	12
4	13	17
5	18	23
6	24	28
7	29	32

	Raw mark	Moderated mark	Scaled mark	Grade
062035 0075 (lcm134) Siswa HL A (DIPLOMA)	30	19	17.813	5
062035 0088 (lcm147) Siswa HL B (DIPLOMA)	31	22	20.625	5
062035 0084 (lcm143) Siswa HL C (DIPLOMA)	26	8	7.5	3

[Figure 15] Scoring for contemporary music maker from the HL IB student in 2024

The highest score for this assessment is 5, and the lowest is 3. HL Student A received a raw mark (predicted mark) of 30, but their moderated mark (final mark) is 19, earning them a Grade 5. Meanwhile, HL Student B received a raw mark of 31 and a moderated mark of

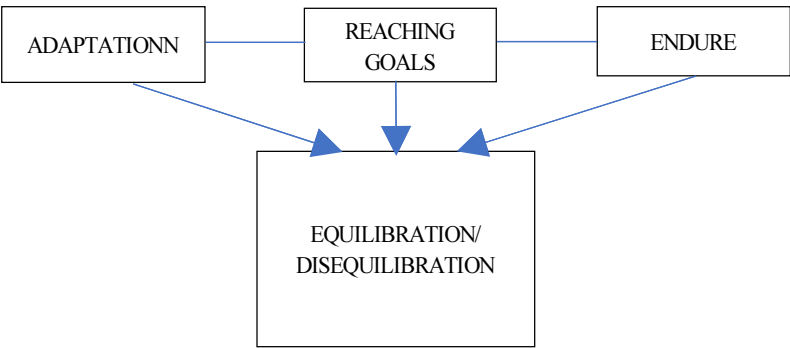
22, resulting in a Grade 5 as well. Lastly, HL Student C received a raw mark of 26 and a moderated mark of 8, placing them in Grade 3. Based on the moderated marks, HL Student B held first place, followed by HL Student A, with HL Student C in third place.

V. Discussion

1. Jean Piaget’s cognitive process

Jean Piaget’s cognitive process is divided into three stages: assimilation, accommodation, and equilibration. These three stages are applied by HL/SL music students, who eventually find their own equilibrium or balance. The students' prior knowledge (assimilation) stems from their diverse musical backgrounds. This influences the accommodation process, where they acquire new knowledge, which varies among the students. Some HL/SL music students had never studied certain concepts before, while others had. For example, not all HL/SL music students had the same foundation in music theory.

Below is the research analysis scheme on Jean Piaget’s cognitive development :



[Figure 16] Jean Piaget’s cognitive development scheme

Based on the data findings, in order to achieve cognitive abilities, students must adapt to their environment. Some students follow the existing rules/norms and values in their surroundings, while others are unable to adhere to these rules/norms/values and instead create their own rules, shaping the environment according to their desires, or in other words, doing as they please. All

of this is done solely to achieve each student’s goals in their cognitive development. In other words, students persist in continuing their cognitive development.

2. Achieving each student’s equilibrium

Based on the IB scores obtained by students, this can be one of determinants of whether the student have reached equilibrium. During the two-year process each student achieved their own equilibrium, as evidence by the score they received.

<Table 11> Presenting music

Presenting music	Moderated mark	Grade
HL Student A	15	3
HL Student B	19	4
HL Student C	12	3
SL Student A	25	5

The highest moderated mark of Presenting music assessment, was achieved by SL Student A, while the lowest was obtained by HL Student C.

<Table 12> Contemporary music maker score HL only

Contemporary music maker HL only	Moderated mark	Grade
HL Student A	19	5
HL Student B	22	5
HL Student C	8	3

The highest moderated mark of Contemporary music maker HL only assessment, was achieved by HL Student B while the lowest was obtained by HL Student C.

VI. Conclusion

Based on the discussion of the creative process conducted by HL/SL music students, it can be concluded that Jean Piaget's cognitive theory benefits students by guiding them through the

processes of assimilation (recognizing prior knowledge), accommodation (understanding new knowledge), and reaching equilibrium (balance). The quality of the balance each student achieves is reflected in their IB scores. This study provides further evidence that Piaget's cognitive theory is not only relevant in general education but also has significant applications in music education.

The experiences of HL/SL music students in going through assimilation, accommodation, and achieving equilibrium during the composition process demonstrate that this cognitive theory provides a theoretical foundation for developing creative skills in music. Additionally, the integration of cognitive aspects into the composition process aligns with Piaget's stages of cognitive development, suggesting that music education can be improved by focusing on students' cognitive development stages.

For future research, it is suggested that the scope of research be expanded, including students from various educational levels (elementary, junior high, and higher education) or students from diverse cultural backgrounds. This would help to determine whether Piaget's cognitive theory in the music creative process is also relevant in different educational and cultural contexts. Another suggestion for future research is to explore specific aspects of the music creative process, such as the relationship between musical elements (melody, rhythm, harmony) and cognitive development in the assimilation and accommodation stages. This could provide more detailed insights into how each musical element can enhance students' creative thinking abilities.

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