

DISCOVERING THE IMPACT OF ACTIVE LEARNING IN BUILDING MALAYSIA PRIMARY SCHOOL PUPILS' LEARNER CONTROL

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Abstract: In aligning with the 21st century curriculum initiative, the Malaysia Education Blueprint 2013-2025 advocates shifting autonomy for education towards learners from a young age. Thereby, active learning becomes a prominent approach to nurture Malaysia primary school pupils' learner control. This case study aims to discover how far does active learning impacts pupils' learner control development currently. We recruited fourteen Year 3 (age 9) pupils and three primary school teachers in this study. Entirely, the active learning implementation is structured by a conceptual framework originating from an idea affiliation of well-known educators. This study presents potential and current achievement of pupils' learner control according to active learning influences and sheds light on significant features for future active learning developing and designing improvement.

Keywords: 21st Century Curriculum; Active Learning; Learner Control; Primary School Education

INTRODUCTION

To meet the unceasing globalisation, 21st century curriculum is a flagship of worldwide education transformation. In the early 90s, Singh (1991) realised that learners are active individuals that drive the entire knowledge-learning process and the self-realisation of their potentialities are important keys to rebuild the education system. Thereby, the 21st century teaching and learning (T&L) approach has evolved from learner-centred learning to learner-directed learning (Fadli & Irwanto, 2020).

In the Malaysian education context, a significant transformation has been carried out to meet the 21st century T&L peculiarities. Based on the Malaysia Education Blueprint 2013-2025, the blueprint shifts responsibility for education towards the individual learner, as the learners from an early age become "self-paced" (MOE, 2013, E31) in setting their own learning targets, be expected to control their own learning, and be able to pursue their own interest (MOE, 2013, E35).

At present, active learning is one of the prominent Malaysia T&L programmes that is exactly compatible with the current education needs. Active learning acts as an essence to create and enhance learning in a changing environment of 21st century education (Yuh & Thamrongsothisakul, 2020). Based on what has been discovered, there are a limited amount of research study on the active learning implementation in Malaysia primary school context. Even overseas, Talbert and Mor-Avi (2019) indicated that there is also limited published research on active learning in primary school settings. Therefore, investigation of active learning implementation in Malaysia primary schools is worth to be explored, in accordance with investigating how the learners deal with it.

In relation to the initiative of ceding "control" to learners emphasised by the 21st century curriculum and Malaysian education assertions, active learning comprises the learner control notion indeed (Shroff et al., 2021). As a matter of fact, active learning is a process of self-paced learning (Yin et al., 2021); whereas, the self-paced learning manner predicts learners' sense of control (Jung et al., 2019). It is worth to specifically and comprehensively explore how far does active learning impact Malaysia primary school pupils' learner control formation in the current stage and what action should be taken in the future to coordinate active learning with current education's attempt in building learners' learner control. Apparently, learning materials invariably play an important role in supporting pupils to discover knowledge at their own pace during active learning (Davenport, 1987; Lillard, 2005). Pupils' autonomous and independent role in utilising learning materials has been lifted due to online home-based learning applied during the Malaysia COVID-19 pandemic movement control period (Kanyakumari, 2020; Wan, 2020). Thus, this study discovers the ongoing material-supportive active learning implementation together with

pupils' prior active learning experiences, to holistically look into the impact of active learning in building pupils' learner control. Eventually, this study contributes worthwhile information for improving, designing, or developing the field of active learning in Malaysia primary school context.

THEORIES AND CONCEPTUAL FRAMEWORK

Conceptually, active learning practices are outlined according to a fundamental structure originated from the ideas' integration of active learning educators, as shown in Table 1.

Table 1
Active learning concepts

Ideas	Educators	Sources	Concepts
Freedom	John Dewey Friedrich Froebel Jean-Jacques Rousseau	Sikandar, 2015 Peerzada, 2016 Lu, 2019	Freedom to control
Decide and control Individual approach	Maria Montessori John Dewey	Lillard, 2005 Miovska-Spaseva, 2016	
Independence	Marva Collins	Collins & Tamarkin, 1982	
Learning by doing/Hands-on	Friedrich Froebel John Dewey	Peerzada, 2016 Hohr, 2013	Hands-on and cognition
Movement and cognition are connected	Maria Montessori	Lillard, 2005	
Learning with interest	Ovide Decroly Maria Montessori	Davenport, 1987 Lillard, 2005	Interest and curiosity
Desire to know and learn	Marva Collins	Collins & Tamarkin, 1982	
Social intercommunication and interaction	John Dewey	Miovska-Spaseva, 2016	Collaborative and interaction
Collaboration	Maria Montessori	Lillard, 2005	
Participate in social activities	Friedrich Froebel	Peerzada, 2016	
Fairness	Vivian Paley	Board of Trustees of the University of Illinois, 2009	
Friendship	Vivian Paley	Board of Trustees of the University of Illinois, 2009	
Reduce extrinsic rewards	Maria Montessori	Lillard, 2005	Intrinsic motivation
Rewarded by own intelligence, efforts, activity, and energy	Loris Malaguzzi	Malaguzzi, 1993	
Problem solving & learning as a process	John Dewey	Miovska-Spaseva, 2016	Learning in context
Action-in-context	William H. Kilpatrick	Humes, 2015	
Learning in context	Maria Montessori	Lillard, 2005	
Experiential learning	John Dewey	Miovska-Spaseva, 2016; Sikandar, 2015	Environment and materials
Interact with social and physical environments	William H. Kilpatrick	Beyer, 1999	
Learn with materials	Maria Montessori	Cohen, 1968	

As an interpretive work, theories bring together related facts and concepts that describe and interpret. Cognitive constructivism (Cattaneo, 2017; Pardjono, 2002; Walshaw, 2004) and social constructivism (Bhagat et al., 2018; Glasersfeld, 1989; Hirtle, 1996) theories significantly brace the psychology aspect of active learning. On the other hand, self-regulation plays a reciprocal causation role among cognition, socialisation, and learning environment (Bautista, 2015; Hoffler & Schwartz, 2011), in which personal factors and environmental events all operate as interacting determinants of each other (Bandura, 1986). Based on Figure 1, each active learning concept has implicated relationship with one another; the framework is supplemented with theories from three perspectives, namely, psychology, self-regulation, and ecology.

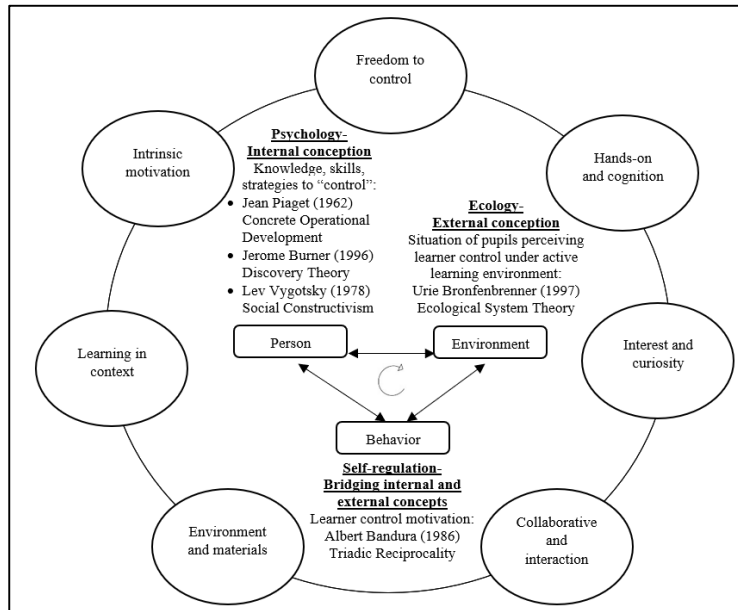


Figure 1. Conceptual framework

METHODOLOGY

This study was carried out during the movement control period of COVID-19 pandemic. The online home-based active learning was being implemented non-formally, in which the T&L setting didn't strictly bound to formal e-learning standards and adjustments were being done flexibly. It was however structured according to the original T&L syllabus, objectives, time, or support (Rogers, 2014). In that context, more "control" is lying with the learners. A qualitative case study methodology was employed to discover the impact of active learning that deliberately builds primary school pupils' learner control. It is suitable to investigate how does the active learning environment influence pupils' sense of "control" and learner control demonstration; to gain a deep understanding from participants' perspectives on learner control knowledge, skills, and strategies based on their active learning experiences; and to explore pupils' learner control motivation actuated by active learning.

A purposive sampling technique was used to select the research site and individuals that could purposefully provide rich active learning experiences and information regarding pupils' learner control. The data were collected from document analysis (portfolio, works, and diaries), participant observation, fieldnotes writing, and semi-structured interviews with fourteen Year 3 pupils; supplemented with three teacher participants' semi-structured interviews. Table 2 shows a data collection matrix that ensures the methods and instruments used fits around the research questions and theories to come up with worthwhile outcomes.

Table 2
Data collection matrix

Research objectives	Supporting theories	Data collection instruments	Samples	Outcomes
Q1: How does the active learning environment influences pupils' sense of "control" and learner control demonstration?	External conception Urie Bronfenbrenner (1997)	Observation Interview	Pupils Teachers	Pupils' learner control reaction towards the active learning environment.

Q2: What is the pupils' learner control knowledge, skills, and strategies developed from their active learning experiences?	<u>Internal conception</u> Jean Piaget (1962) Jerome Bruner (1961) Lev Vygotsky (1978)	Document analysis (portfolios, works, diaries)	Pupils	The attainment of active learning implementation in developing pupils' learner control knowledge, skills, and strategies.
Q3: How is the pupils' learner control motivation that actuated by active learning?	<u>Self-regulating among internal and external concepts</u> Albert Bandura (1986)	Interview	Pupils	The level of pupils' learner control motivation impacted by the current active learning implementation.

Thematic analysis was used to interpret codes, generate categories, and construct themes. It was designed to ensure triangulation and interpretative validity (Maxwell, 1992).

RESULTS AND DISCUSSION

Active learning environmental setup and situation

The social setting influences pupils' behaviour integration to manifest learner control differently in different active learning environments (Khatimah, 2021). Pupils' initiative to start the interactive activities is higher during in-class active learning; whereas, pupils incline to learn individually during online active learning. Anyhow, pupils benefit from both physical and virtual learning environments by accessing concrete and virtual learning materials at their own will. For example:

Yin has finished learning with songs, videos, and several materials. Now, she is doing the advanced exercise that requires her to take photos of different prepositions found in her surroundings. She writes sentences about the photos she has taken. She is walking around her room with a smartphone in her hand. She snaps photos in her room, specifically on room objects. (Prepositions/Observation/0:02:04CVT4- 0:05:36CVT4)

Based on teacher participants' interview responses, teachers believe that primary school pupils need frequent monitoring. Oppositely, some pupils displayed high capability in managing their learning without adults' intervention. This situation similarly occurs in current studies (Palaigeorgiou & Papadopoulou, 2019; Rajagopal et al., 2020). For example:

Sen finished today's task earlier. Sen requests to do last week's pair activity that he missed. He wants to continue and complete last week's activity by today. Then, he asks Matt to be his partner and starts to ask about Matt's favourite room. Matt answers him and Sen successfully completes his task. (House 3/Observation/0:23:14VT-0:36:30VT)

Entirely, in the interactive environment set up by teachers, pupils collaborated with each other and shared opinions accordingly during active learning without teachers' intervention. Unfortunately, similar to Bautista's (2015) view, active learning causes great impact among high ability pupils' learner control, however, marginal impact among low ability pupils' learner control. The disparity of "fairness" reduced some pupils' initiative to control, share, and contribute their benefits to peers (Peko & Varga, 2014). Sometimes, pupils were not engaging with exploratory talk in the group (Patterson, 2016) which was most probably affected by friendship distraction in the context. Besides, pupils' responsive talk or interaction did not simply happen in the class, they often relied on teachers' frames, prompts, responses, and followed by conscious adjustment or scaffold to pacing and scope (Boyd, 2016). Similar to teachers' expectation of support needed by pupils, pupils often required distinct cues to guide their learning (Palmer et al., 2017), especially providing reminders to push them to take initiative or to accomplish their learning.

Pupils' Knowledge of Applying Learner Control

Knowledge means the understanding that someone gains through education or experience. Basically, pupils took learning goals and instruction as the main guideline that fully explains the concepts and procedures to carry out active learning activities at their own pace (Dunham et al., 2020; Trninić, 2018). In line with Piaget, children at this age level are having a basic mental structure, in which all subsequent learning and ways of gaining knowledge are based (McLeod, 2018). Based on pupils' active learning outcomes, some pupils presented their works to "exactly" meet the instruction requirements. A typical example:

He doesn't learn by himself. He just finishes the work told by the teacher. He doesn't expect much in his learning. (Kang/Portfolio)

Clearly, Malaysia primary school pupils' conception of "following the rules" and "achieving goals" somehow cause them "not to expect much" or "not learning further" (Mohd Fadzly Wasriep & Lajium, 2019). This situation echoes to Vygotsky's (1978) ZPD concept and Piaget's interpretation of concrete operation children, in which pupils must receive instruction that moves them level-by-level instead of letting them take initiative to move further (Bloom et al., 1956).

On the other hand, echoing to the study results of DeVore et al. (2017), there were pupils neglecting the active learning outline that was purposely designed to help them recognise and resolve their learning difficulties and to strengthen their learner control effectivity. Pupils are fundamentally aware and confident to learn without following the rules or instructions exactly (Dunham et al., 2020), even though some of them got "lost" in the learning context sometimes. Most of the pupils' learner control demonstrations were driven by their curiosity and cognitive interest triggered by the instant enjoyment and exploration of active learning activities (Ackermann et al., 2019; Dinara, 2021), which Piaget (1962) called it as "intuitive stage". Thereby, all children have a natural curiosity and interest to become competent in discovering knowledge (Bruner, 1960), which pupils expressed in their diaries that they wish to "learn again", "learn more about something", and "increase challenging work".

Piaget (1962) indicated that concrete operational learners usually make their decision hastily and without thought to the process. Surprisingly, pupils in this study learned accordingly to their personalised learning method (Rajagopal et al., 2020), which outstandingly resulted in different amounts of input required, different types of learning outcomes, different ways of time, pace, and activities management, different ways of works presentation, and different amounts of social support needed. Opposed to Piaget's concrete operational (1962) view, this study discovered the existence of pupils' freedom and flexibility awareness in making decisions or choices rationally, earlier than Piaget proposed (Babakr et al., 2019). Yeh et al. (2019) define this as a "cognitive salient attribute" in pupils. This study stands in line with some studies (Dotsenko et al., 2020; Leasa et al., 2020), which indicated that learners' responsible decisions have been formed at the early stages of childhood and tend to develop in different stages of children learning development.

Pupils' learner control awareness increases if the active learning environment doesn't urge them to interact with other people; it is due to pupils' brain maturation and environmental influences that affect their metacognitive abilities (Steiner et al., 2020). Nonetheless, sometimes, pupils might succeed in their learning but they hardly prepare themselves to fully take over their learning responsibility and they normally behave passively and compliant. Relating to the inconsistency, contradiction, and obscurity of pupils' learner control perseverance, Vygotsky (1978) suggested that pupils have the capacity to accomplish cognitive improvement through social interaction. According to Piaget, interaction between children and people who hold different thoughts creates cognitive conflict and helps their cognitive growth as well (Palincsar, 1998; Rogoff, 1999). Undeniably, pupils share or pass the "control" peculiarity to other people, especially when they can easily gain assistance from the immediate social setting of an active learning environment (Clinton & Wilson, 2019).

Pupils' Learner Control Skills

Skills are the ability that enables someone to do something well. Pupils' diaries often indicated that "I do my homework", "I learn myself", and "I learn alone", which means pupils act as the autonomous discoverer and active beings to construct, discover, and validate their own knowledge (Bruner, 1961). In the rich material-supportive active learning environment, "pupils' learning can be spurred by interest in the materials" (Bruner, 1961, p.2). Basically, they obtain or construct knowledge at their own pace, especially discovering knowledge from visual or graphic type materials. This situation makes a breakthrough from Piaget's (1962) view about concrete materials play the most essential role in concrete operational stage learners.

When dealing with active learning activities, materials, and tasks, pupils have the opportunity to trigger their higher-order thinking process (Leasa et al. 2020). As a matter of fact, pupils learn best if they have the love and capacity for learning to become an “autonomous and self-propelled thinker” (Bruner, 1961, p.2). However, Piaget claimed that young children are incapable to produce critical thoughts (Kennedy, 1991). We can’t ignore that even teachers nowadays do not predict the critical thinking skills of primary school pupils as well (Ugwuozor et al., 2020). Interestingly, some pupils in this study were able to explain the reasoning behind their opinions in logical dimensions, in terms of affectional, superficial, geographical, scientific and technological, social and cultural, cosmic discovery, and so on, after obtaining knowledge by themselves from learning materials. These pupils’ cognitive process turns out to be quite different from Piaget’s preliminary view of children’s independent thinking ability (Babakr et al., 2019; Walczak, 2019).

However, not all pupils are able to effectively construct knowledge from the learning materials by themselves. Similar to Dutkowska’s (2020) study, some pupils’ active learning outcomes or achievements do not always desirable. This situation shows the “compatibility” problem and pupils’ capacity for handling information flow in approaching learning materials at their own pace (Bruner, 1971, pp.71-72). In fact, the difficulties to discover knowledge from learning materials mostly appear in pupils with low intelligence or low learning capability (Markant, 2020). However, similar to Leung et al.’s (2018) study results, most of the pupils’ discovery level in this study is at a medium level. Pupils can discover and resolve their learning in their own way, yet they will only go beyond if there is direct information or readied resources provided.

Besides, pupils have developed self-discovery skills from active learning in form of self-questioning and self-checking, even though the emphasis on pupils’ self-assessment and self-evaluation in Malaysia primary school isn’t distinct in the present (Sidhu et al., 2018). Pupils voluntarily engaged in doing game-based quizzes, in which digital games provide opportunities for them to experience and critically rethink their learning (Felix et al., 2019). Interestingly, the high participation and achievement of pupils in the quizzes are aligned with Sek et al.’s (2012) study, which displayed no distinct among primary school pupils and adult learners’ potential in self-assessment and self-evaluation activity.

The scores obtained by pupils from self-assessment quizzes reflect pupils’ learner control self-initiative and self-achievement in active learning. Entirely, at least five pupil participants displayed higher learner control capability; six pupils gained average score for their learner control achievement; the rest of them are considered to have the potential to strengthen their learner control ability in active learning. However, pupils displayed stability in performance, but not stability in monitoring or controlling accuracy (Steiner et al., 2020). Consistent with some studies, pupils are hard to accurately understand or predict individual strengths and weaknesses (Keane & Griffin, 2018; Reinders, 2010; Tullis & Benjamin, 2011). Indeed, pupil participants could not self-reflect properly and often went out of context. In fact, reflective thinking has been historically promoted as a vital factor in learning (Bruner, 1986; Dewey, 1933).

Pupils’ Learning Strategies During Learner Control Demonstration

Strategies is a plan of action that is intended to achieve a particular purpose. Consistent with previous studies (Elizabeth, 2018; Lockwood, 2008; Stephen et al., 2010), pupils have the potential to manifest different personal needs and multiple intelligence within the active learning context. Among the learning strategies, pupils’ preference for engaging collaborative or individual learning action varies across ontogeny (Stengelin, 2020). Entirely, the “passive” and “active” peculiarities interchange is widely occurred during active learning based on pupils’ personal learning needs. In fact, gaining information can take place actively as well as passively in classrooms (Myhill, 2002; Wasik et al., 2006). The active learning outcome which presents pupils’ “passive” and “active” learner control demonstrations is shown in Figure 2.

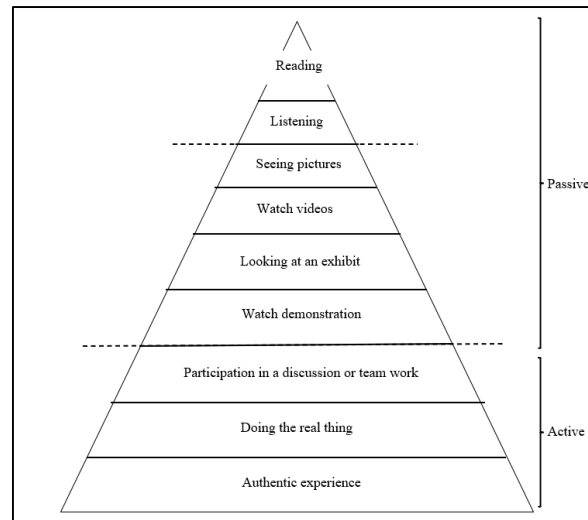


Figure 2. “Active” and “passive” interchanging in active learning (adapted and recomposed from Dale, 1969, p.108)

Pupils’ Learner Control Motivation in Active Learning

Specifically, talk about pupils’ intrinsic motivation, primary school pupils’ learner control motivation is stimulated by their personal learning goal orientation and learning awareness to pursue their journey of obtaining knowledge in active learning. This displays the metacognition regulation applied by pupils in their learning context (Pennequin et al., 2020). Same as Alharbi Awatif Abdullah M. and Yang’s (2019) study, pupils strengthen their self-efficacy with self-pride or self-esteem obtained from their active learning experiences. Thereby, feedback or praises do not affect much on pupils’ intrinsic learning motives (Drews et al., 2020). For example:

I am happy because I have done it all correctly...It is not necessary to gain praises, as long as I have done it correctly...Praise is not important but self-success is important. (Jerry/Interview/404-414)

In terms of the formation and change of self-concept in pupils, pupils’ self-perception changes according to their learning experiences (Nobre & Valentini, 2019). Sometimes, pupils face difficulties to systematically carry out the self-regulative behaviour to readjust their intrinsic learning motivation (Kuhn et al., 2000). In other words, pupils’ motivational beliefs aren’t firm enough to completely uplift the intrinsic motivation in them in the current stage. Thus, pupils need support from extrinsic motivation. For example, pupils sometimes change their aim of learning to make other people feel proud of them (Henning, 2019) or to gain approval in terms of praise (Davison et al., 2021):

Sometimes, I learn for others; sometimes, I learn for myself...Sometimes, I learn for parents...I want them to be proud” (Yin/Interview 01/426-436)

I am not happy...because I have already worked so hard but teacher doesn’t praise me... I think maybe I am not doing good enough because teacher doesn’t praise me. That is why I need to continue to work hard until teacher praises me one day. (Sen/Interview/523-535)

As a matter of fact, some studies found a positive correlation between praise-oriented and intrinsic motivation in enhancing or promoting learning autonomy (Henderlong & Lepper, 2002; Takahashi, 2018). There isn’t extreme contradiction among extrinsic and intrinsic motivation implied in active learning to build pupils’ learner control.

IMPLICATION AND CONCLUSION

Some outstanding features have emerged from the active learning’s impact which protrude pupils’ learner control distinct achievement. Although most of the pupils’ cognitive development are comply with Piaget’s (1962) concrete operational stage, pupils are having the potential to surpass the preliminary expectation. Details are shown in Table 3.

Table 3
Outstanding learner control performances

This study	Piaget
Pupils make decisions or choices rationally and control over their learning appropriately under variant situation.	Concrete operational children make decision hastily and without thought to the process (Piaget, 1962).
Some pupils provide critical reasoning based on tasks and materials according to own understanding.	Young children are incapable to produce critical thoughts (Kennedy, 1991).
Pupils learn actively with both concrete and virtual learning materials.	Concrete materials play the most essential role in concrete operational stage (Piaget, 1962).

Oppose to Piaget's (1962) children cognitive structure, Bruner believes that children's cognitive development can be "speed-up" according to their personal development rate (Bruner, 1960). Bruner's notion of pupils' cognitive development echoes to the findings of this study with the emergence of outstanding features surpass expectation. It protrudes the significant status of Bruner's (1961) Discovery Theory to brace active learning implementation in building pupils' learner control.

In conclusion, active learning implementation in Malaysia primary schools provides constructive impact in building pupils' learner control. However, there are difficulties and tensions that retard pupils' learner control development and demonstration in active learning, which are resulted from pupils' regulating process. Table 4 summarises the overall impact of active learning in building pupils' learner control. It shows the potential and current achievement of pupils' learner control impacted from their active learning experiences; in the meantime, the difficulties and tensions found in the context are the features that tend to be concerned to further improve active learning influences in nurturing pupils' learner control. Entirely, this study provides comprehensive insights into current active learning implementation in Malaysia primary schools and sheds some light for future developing and designing improvement.

Table 4
The impact of active learning in building pupils' learner control

Categories	Regulating process		Difficulties/tensions	Intrinsic/extrinsic
	Achievements	Regulating features		
Self-motivation	Mastering learner control knowledge, skills, and strategies	Self-understanding	Falsely predict personal learning strength and weakness Hardly self-reflect	Decrease of intrinsic motivation functionality
Approval/Confirmation	Self-pride/self-esteem (Outstanding: rational decision and choice in controlling, logical and critical reasoning)	Approval and praises	Increasing of the needs for external stimuli to replenish intrinsic motivation	Increase of external influences
Sense of community	Involve in interactive activities Collaborate and contribute in peer learning	Social frames and scaffold Fairness disparity Friendship distraction	Lacking initiative of responsive talk Great impact among high ability pupils; marginal impact among low ability pupils	
Optimisation of learning environment	Ontogenesis-driven to interchange among "active" and "passive" learning actions Control and manage learning activity, pace, and time	Different active learning environment influences on pupils' learner control behaviour Amount of freedom and immediate support provided	Environmental-driven to be self-reliant, or learn with/from other people Rely on cues and reminders	

Free discovery on learning materials and tasks (Outstanding: mastering concrete and virtual sources or resources)	Instruction-oriented Goal-oriented	Lack of further discovery/lost during free discovery (different capacity for handling information flow)
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