

## **DIMENSIONS IN THE LEARNING IMPLEMENTATION AND STRATEGIES OF ADAPTED PHYSICAL EDUCATION FOR CHILDREN WITH SPECIAL NEEDS DURING THE COVID-19 PANDEMIC: A LITERATURE REVIEW & GROUNDED THEORY**

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### **Abstract**

*The existence of urgency regarding the learning implementation and strategies of adapted physical education (APE) for children with special needs during the COVID-19 pandemic (CP), makes this problem interesting to be studied further. The purpose of this article is to find out about the implementation dimensions and learning strategies of APE for children with special needs (CSN) during the CP. The method used in writing this article is a literature review. The data collection technique is using the PRISMA method from a total of 712 reference sources from various databases then filtered to obtain 16 references at the final stage which will become literature review and grounded theory. The analysis uses a literature review and grand theory relating to two variables, namely (1) Learning Implementation (LI) of APE on CSN during the CP; and (2) Learning Strategies (LS) of APE learning on disabilities during the COVID-19 pandemic. The results are divided into two points which are 1) LI of APE on CSN during the CP, consisting of four dimensions, namely (1) Learning planning dimensions, (2) Learning implementation dimensions, (3) Dimensions learning assessment; and, (4) Dimensions of learning evaluation. Another point under LS of APE on CSN during the CP, consisting of four dimensions, namely (1) Dimensions of learning strategy planning; (2) Dimensions of implementing learning strategies; (3) Dimensions of modification of learning strategies; (4) Dimensions of evaluation of learning strategies. These findings contribute as material for further studies for the manufacture of instruments up to the point based on the dimensions of learning implementation and strategies APE for CSN during the CP.*

**Keywords:** *Learning implementation, Learning strategies, Adapted physical education, Curriculum-2013, COVID-19 pandemic.*

### **Introduction**

Physical education learning for students, especially for children with special needs (CSN) is the target of adapted physical education (APE) (Burhaein, 2020, 2021; Phytanza & Burhaein, 2020). APE learning is an individual program that includes movement fitness, physical, basic movement patterns & skills, dancing, skills in water activities, sports games both in teams & individually designed for people with CSN (Forestry et al., 2019; Winnick & Porretta, 2017). APE helps CSN to solve problems in their physical activity (PA) (Burhaein, Tarigan, Budiana, Hendrayana, Phytanza, et al., 2021; P. Purwanto, Nopembri, et al., 2021).

APE is one of the important lessons for the self-development of CSN. There are several benefits of APE learning for CSN (Burhaein et al., 2022; Phytanza, Mumpuniarti, Burhaein, et al., 2021), including physical improvement, mental improvement in confidence & well-being, improvement in behavior,

and PA to increase health status (Burhaein, Tarigan, et al., 2020; Widiyono & Mudiono, 2021). APE learning is dominated by adapted PA. An important activity for all including crew members (Mumpuniarti et al., 2021; S. Purwanto & Burhaein, 2021).

APE learning as PA is one of many important factors that play a good role in the degree of one's health (Burhaein, Phytanza, et al., 2020; Irawan & Limanto, 2021). Moderate-intensity activity has acute beneficial effects on immune function and inflammation that will help reduce and protect against the risk of certain viruses (Hojman et al., 2017; Nieman & Wentz, 2019). Regular physical activity improves cardiovascular function, coagulation, and fibrinolytic homeostasis, and overall protection against cell stress, can increase respiratory muscle endurance and strength, make it more efficient and boost the immune system through PA (Burhaein, Ibrahim, et al., 2020; Dorneles et al., 2020; Pinckard

et al., 2019; P. Purwanto, Lumintuarso, et al., 2021; Putra et al., 2021).

Based on research, it is known that CSN has a passive tendency to move so they may be at risk for obesity, physical inactivity (PI), and persistent passive behavior (Burhaein, Tarigan, Budiana, Hendrayana, & Phytanza, 2021; Cook et al., 2015). PI is one of many factors that become a major risk factor for non-communicable diseases and death in many parts of the world (Burhaein, Demirci, Lourenço, Németh, & Phytanza, 2021; Phytanza et al., 2022). PI hurts a person's health. Based on data from the World Health Organization (WHO), PI has an impact on increasing the risk of stroke, diabetes, heart disease, and cancer by 20-30%. It is estimated that between four and five million deaths per year could be prevented if the global population were more active (Azizah & Sudarto, 2021; Sutopo & Misno, 2021; WHO, 2020b). The development of PA is also included in the realm of education in schools. Research in Australian primary schools has explored the importance of PA in educational curricula (Mavilidi et al., 2019; Nanda et al., 2021; Phytanza et al., 15 C.E.).

Based on this urgency, the role of APE learning is important for CSN. APE learning is viewed from the learning implementation and strategies. Learning implementation (LI) is related to the implementation and application of learning, especially APE for CSN. Next, the learning strategies (LS) relate to the techniques used by the teacher to help the CSN become learners by the learning objectives.

The current learning conditions have changed due to the massive impact of the COVID-19 pandemic (CP) that has spread throughout in the world. Although distance learning (online) planning has been implemented in many parts of the world due to the spread of CP (UNESCO, 2020; Widodo & Najibuzzamzam, 2021), there are demands for adopting this format and encouraging the main requirements of the online education system for inclusive CSN students (UNICEF, 2020b, 2020c, 2020a). Physical distance, lockdown, and shifting learning formats, then there are other economic & contextual factors associated with CP, have a disproportionate impact on vulnerable groups affected including CSN & family (UNICEF, 2020b; WHO & World Bank, 2020). CSN and family experience obstacles compared to other families, in addition to the challenges/obstacles caused by CP. These constraints harm their opportunities and well-being to study online. The CNS is thought to have more health care needs, although those who are young children tend to be more vulnerable than adults during CP (Phytanza, Burhaein, & Pavlovic, 2021; United Nations, 2020) because infections caused by COVID-19 can worsen health conditions such as cardiovascular disease, respiratory function, immune system function, and diabetes (Brom et al., 2020;

Halfon et al., 2012; Jannah et al., 2021).

In addition, it is not only the risk of infection that can increase parents' concerns, namely the limited support due to the lockdown situation and resources (European Disability Forum, 2020; National Council on Disability, 2020; Priestley & Hemingway, 2007). Thus, in addition to the persistent challenges related to inclusivity (WHO, 2020a), adequate access to distance learning (online) during the CP is considered another challenge for CSN and parents (Phytanza, Burhaein, Lourenço, et al., 2021; UNICEF, 2020b, 2020c).

The conditions mentioned above certainly influence on the conditions of APE learning for CSN. Therefore, it is interesting to explore more about the dimensions of learning implementation and strategies APE for CSN during the CP. The purpose of this article is to find out about the dimensions of implementation and learning strategies of APE for CSN during the CP.

## Methods

The method of writing articles is a literature review (Magnani et al., 2019; Moher et al., 2009). A literature review is a structured review of the literature conducted to assess whether and how these dimensions were analyzed in research (Magnani et al., 2019). The data collection technique is using the PRISMA method (Tricco et al., 2018), to get the desired article for analysis. The stages of the PRISMA method of data collection techniques can be seen in Figure 1 (search process and results from articles to be reviewed), then a description of the stages is described in detail below.

### Identification

Identification, namely Identifying articles through journal searches. The author looks for references from two reference sources. The two reference sources are (1) very high indexed scientific reference databases (Pubmed, Taylor & Francais, Science Direct, and Springer), and; (2) Other scientific reference databases from Google Scholar sources or state documents that are shared publicly. The author entered keywords in each database including: "learning implementation", "learning strategy", "adaptive physical education", "2013 curriculum of Indonesia", and "COVID-19 pandemic"; and the year the article was published in the range 1997-2021 (last 25 years).

### Screening

Screening, the authors screened by determining the inclusion and exclusion criteria. Further explanation of the two criteria is as follows.

#### 1. Inclusion criteria:

- a) Reference sources in English and Indonesian
- b) The types of references for the two main sources are research articles, conceptual/ theoretical, literature reviews, editorials, commentaries, textbooks for adaptive physical education in the

2013 curriculum, and Indonesian state laws (UU-RI).

- c) All of these references can be accessed/downloaded/open access.

2. Exclusion criteria:

The articles obtained were then screened, with the year the article was published in the range 1997-2021 (last 25 years). The author specifies articles with inclusion and exclusion criteria, for articles that do not fit than are not included in the screening stage.

Eligibility

Eligibility, the author then determines the article that will be used as literature review material that

has met the eligibility, namely the article must be based on the reference source sought according to the two themes that are the research objectives. The two themes are (1) LI from APE for CSN during the CP, and; (2) LS from APE for CSN during the CP.

Articles are also eliminated from duplication of reference sources.

Included

Included, after the article meets the eligibility, a total number of final references will be obtained which will become Grounded Theory and Literature Review.

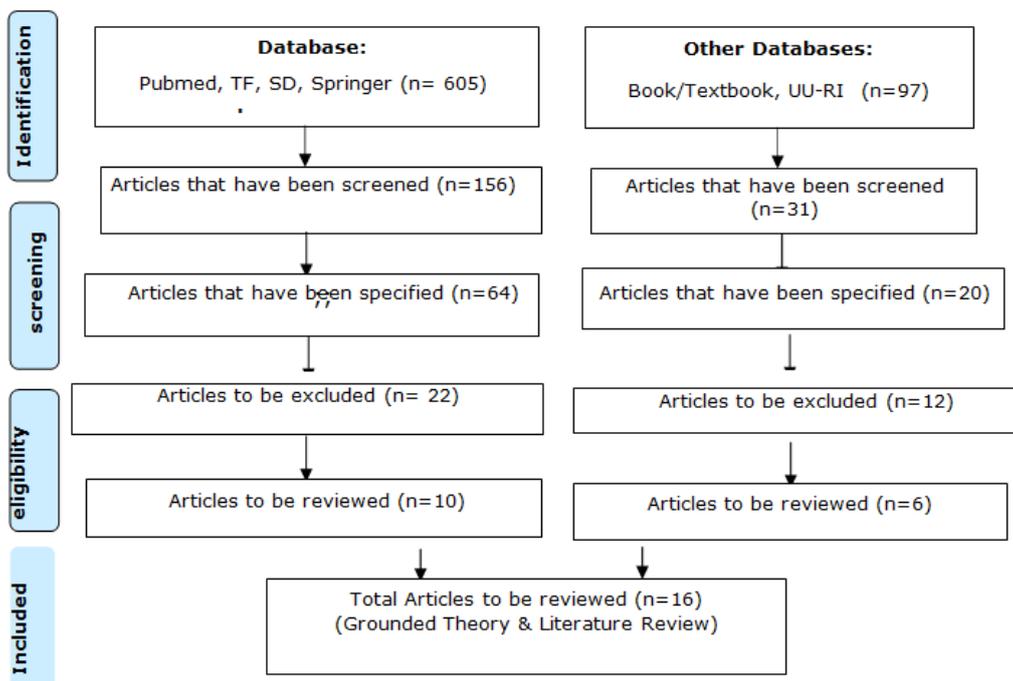


Figure 1. Search process and results from articles to be reviewed. Taylor & Francais = TF, Science Direct = SD, Indonesian State Law = UU-RI. Source: Primary Data 2021

Results and discussion

The learning conditions for adaptive physical education (APE) for students with disabilities have experienced significant changes in certain dimensions

and indicators, which have occurred in almost all countries in the world, one of which occurs in Indonesia. The gap analysis can see in Figure 2.

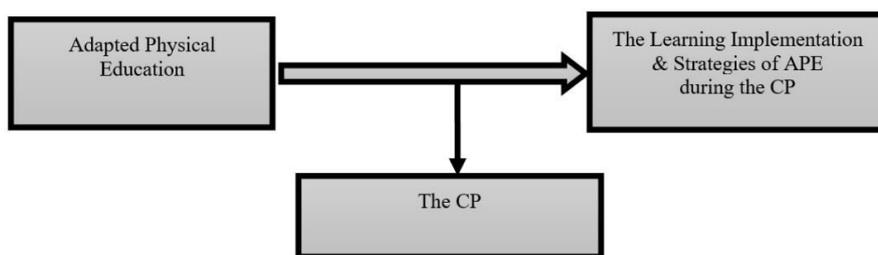


Figure 2. Research Gap. Source: Primary Data 2021

Based on the focus of the problem in Figure 2, the results section of the review contains analytical answers to answer research questions:

1. How about grounded theory & literature review of learning implementation of APE for CSN during the CP?
2. How about grounded theory & literature review learning strategies of APE for CSN during the CP?

Based on the two research questions above, a review and analysis of references/articles were then carried out. The process of selecting and screening articles/references has been carried out at the data collection stage using the PRISMA method, namely from a total of 712 references, then the final results

are obtained with a total of 16 references to be reviewed. The final total of these various literature sources is 16 references. These are grounded theories which are then analyzed into a literature review as in Sub-chapter 4.1. and 4.2 below.

*Grounded Theory & Literature review Learning Implementation (LI) of Adapted Physical Education (APE) for Children with Special Needs (CSN) during the CP*

1. Grounded Theory LI of APE for CSN during the CP.  
The Dimensions & Indicators Learning Implementation of APE for CNS during the CP presented in Table 1.

Table 1. Dimensions & Indicators of LI of APE for CSN during the CP. Source: Primary Data 2021

No	Learning Dimensions & Indicators	Conclusion (Dimensions & Indicators)
1.	<b>Permendikbud No 22 (2016)</b> Dimensions of Learning Curriculum 2013 of Indonesia: (1) Learning planning, (2) Learning implementation, (2) Learning outcomes assessment; (4) supervision of the learning process	<b>(1) Learning planning:</b> a Curriculum Use b Assessment c Preparation of Learning Tools d Learning strategies  <b>(2) Learning Implementation:</b> a Steps of learning b Learning Activities c Time Allocation d Learning Modification  <b>(3) Learning assessment:</b> a Attitude b Knowledge c Skills  <b>(4) Learning evaluation:</b> a Student engagement b Learning Support c Learning barriers d Learning reflection
2.	<b>Washington University of Center for Educational Learning (2012)</b> 1. Objectives: (1) Standards; (2) Learning targets & teaching points 2. Student involvement: (1) intellectual work; (2) Engagement strategy; (3) Speak 3. Curriculum & Pedagogy: (1) curriculum; (2) approach/learning strategy 4. Learning assessment: (1) assessment; (2) setting 5. Class & cultural environment: (1) Use of physical environment; (2) Class Routines & Rituals; (3) Class culture	
3.	<b>Bergin (2019)</b> Learning Dimensions: self-regulation, motivation, and use of learning strategies	
4.	<b>Simamora (2019)</b> Dimensions of PJOK K-13 learning processes/activities in Indonesia with 5M: Observing ( <i>Mengamati</i> ), asking questions ( <i>Menanya</i> ), gathering information ( <i>Mengumpulkan informasi</i> ), reasoning/associating ( <i>Menalar/ Mengasosiasi</i> ), and communicating ( <i>Mengkomunikasikan</i> ).	
5.	<b>Hoban &amp; Erickson (2004)</b> Dimensions of learning: personal dimension, sociocultural dimension, and action setting dimension	
6.	<b>Simamora (2019)</b> Dimensions of PJOK K-13 learning assessment in Indonesia: 1. Attitudes (spiritual & social): journal, self-assessment, assessment among students 2. Knowledge: oral, written, assignment 3. Skills: practice, project, portfolio	
7.	<b>Vickerman (Vickerman, 2007)</b> <b>Dimensions of APE</b> 1. Understanding and knowledge of and about health & fitness. 2. Apply and select an idea, composition, and tactical skills. 3. Develop and acquire skills. 4. Improve performance and evaluate.	
8.	<b>Nurulfa, et al. (Nurulfa et al., 2021)</b> Indicators in physical education LI during a pandemic: 1. Interest in learning 2. Learning experience 3. Learning difficulties 4. Dominant learning materials & assignments 5. Learning support	
9.	<b>Marzano et al. (1997)</b> Dimensions of LI: (1) Resources for learning strategies; (2) Framework for planning staff development; (3) The structure of curriculum planning and assessment.	
10.	<b>Bailey et al. (2009)</b> Dimensions of assessment in physical education LI: (1) Psychomotor; (2) Cognitive; (3) Affective, and; (4) Social.	
11.	<b>Vickerman (2007)</b> Dimensions of APE Learning Assessment: (1) Cognitive; (2) Emotional/affective; (3) Social.	

Based on the conclusions of the grounded theory above, a descriptive study in the form of a literature review can be made, as in sub-chapter 4.12. This sub-chapter describes in-depth the Literature Review LI of APE for CSN during the CP.

## 2. Literature Review LI of APE for CSN during the CP

### Dimensions of learning planning

Learning planning (LP) is designed in the form of a syllabus and lesson plan (RPP) which refers to the Content Standards. LP includes the preparation of learning implementation preparation or plans of learning resources and media, learning scenarios, and learning assessment tools. The preparation of the RPP & syllabus is adjusted to the learning approach used of learning approach (Permendikbud No 22, 2016). The dimension of learning planning contains four indicators. The four indicators are indicators of curriculum use, assessment indicators, indicators of the preparation of learning tools, and indicators of learning strategies. Further description is explained below.

*Curriculum use indicator*, one of the reasons for the creation of the learning dimension model is to influence curriculum planning, both the curriculum in schools and referring to the curriculum at the level of national. It is especially well suited for planning lesson plans and assessments that are clear and consistent with the curriculum, including routine and performance tools. (Marzano et al., 1997). The curriculum includes, among others: (Washington University of Center for Educational Learning, 2012), (1) Teaching materials (for example, texts, resources, etc.) and assignments are challenging and supportive for all students, meet the learning objectives and content area standards, and are culturally and academically relevant; (2) Subject matter and assignments are linked to larger units and the sequence and development of conceptual understanding over time. In Indonesia, APE is one of the subjects for CSN whose learning planning refers to the 2013 Curriculum (Simamora, 2019).

*Assessment indicator*, there are at least five things to consider in the assessment. The five things are, (1) Students evaluate their learning according to their learning goals; (2) Teachers create various examination opportunities, hoping that all students can show their learning results; (3) Evaluation methods include various tools and methods to collect information about each student (4) Teachers use observable systems and routines to record and use student evaluation data (e.g., charts, Notes, portfolios, gauges), and; (5) Assessment criteria, methods and objectives are carried out transparently and following learning targets (Washington University of Center for Educational Learning, 2012). Assessment in lesson planning is done before starting the lesson. This is done to illustrate the students' initial skills, which will be developed in the study based on the previously assessed conditions.

*Preparation of learning tools indicator*, there are two main components in the learning tools according

to the 2013 curriculum in Indonesia, namely the syllabus and the lesson plan (RPP) (Permendikbud No 22, 2016). The curriculum is a reference to prepare the learning framework for the learning materials for each subject. The study program must include at least: 1) identity of the subject; 2) identity of the school; 3) core competence; 4) basic competence; 5) matter; 6) objective; 7) learning; 8) evaluation; 9) time allocation and; 10) Learning resources (Permendikbud No 22, 2016). RPP is a plan of face-to-face learning activities for one or more meetings. RPP is developed from the curriculum and aims to guide students' learning activities to achieve basic competencies (KD). Each educator in an educational unit is required to prepare comprehensive and systematic teaching plans to make learning interactive, inspiring, engaging, challenging, and efficient, inspire students to actively participate, and provide sufficient initiative, creativity, and space for independence. Your talents and interests, and the physical and mental development of students. The RPP is prepared based on KD or subtopics made in one or more meetings (Permendikbud No 22, 2016).

*Learning strategy indicator*, is an important indicator to consider (Bergin, 2019). At the most basic level, various methods are used as the source of inquiry-based learning strategies. Although the method contains many effective strategies, it is important to remember that the method is not a model. When using strategies, the effectiveness should be selected and measured according to the expected effect of learning. This means that even at this basic level of use, it is important for teachers to understand each dimension when choosing and using strategies (Marzano et al., 1997). During CP, LS is a key and important indicator that needs to be revealed more, especially in adaptive sports learning.

### Dimensions of learning implementation

LI is the implementation of the lesson plan. LI that refers to the lesson plan includes preliminary, core, and closing activities. The implementation of learning is also related to classroom management during the learning process (Permendikbud No 22, 2016). The dimension of learning planning contains four indicators. The four indicators are indicators of learning steps, indicators of learning activities, indicators of time allocation, and indicators of learning modification. Further description is explained below.

*Indicator of learning steps*, in APE, using the 2013 curriculum in Indonesia, namely introduction, core, and closure (Permendikbud No 22, 2016). In preliminary activities, teachers are required to psychologically and physically prepare students, provide motivation, ask questions about prior knowledge of the materials they have learned, explain the learning objectives or basic skills to be achieved, and convey the scope of the materials and correct them according to the syllabus Explanation of the description of the activity (Permendikbud No 22, 2016). Core activities use learning models, learning methods, learning media, and learning resources

tailored to the characteristics of the student and subject. The selection of integrated and/or scientific and/or scientific themes and/or thematic methods and/or discovering and/or generating project-based learning is adjusted according to the characteristics of ability and education level (Permendikbud No 22, 2016). At the end of the activity, teachers and students, whether they are individuals or groups, both reflect and evaluate: find the direct and indirect benefits of the results achieved in the next step, give feedback on the learning process and results, and carry out follow-up activities to provide individual and group work And report the lesson plan for the next meeting (Permendikbud No 22, 2016).

*Indicator of learning activities*, an APE using the 2013 curriculum in Indonesia known as 5M (Permendikbud No 22, 2016). Learning activities include 1) Observing, namely observation activities carried out by looking at, reading books or texts, and listening to teacher explanations; 2) Asking, Through questions, students are directed to be sensitive to the environment so that every idea that comes from environmental problems is experienced in everyday life related to learning; 3) Gathering information. Learning activities at this stage are carried out by collecting information from various literature to answer questions posed in questioning activities; 4) Reasoning/associating, The term association in learning refers to the ability to group ideas and relate events and then combine them into memory fragments; 5) Communicating, Communicating activities include the delivery of the results of discussions, observations, and the results of student assignments, both in oral and written form (Permendikbud No 22, 2016). Adaptive physical education is one of the learning objectives that use physical activity as a means of achieving education for children with disabilities.

*The time allocation indicator*, is adjusted according to the number of hours in the course structure of a semester or a year. The time allocation is determined according to the need to achieve KD and the learning load, taking into account the number of teaching hours available in the course and the KD that must be achieved (Permendikbud No 22, 2016). Time Allocation of Face-to-face Hours Adaptive physical education learning is different at each level, including elementary school level (SDLB) which is 35 minutes, junior high school level (SMPLB) is 40 minutes, and high school level (SMALB) is 45 minutes (Permendikbud No 22, 2016).

*Learning modification indicator*, Learning APE includes synergy between evaluation and modification. Modification or arrangement, that is, teachers use formative evaluation data to adjust current education, modify future learning, and provide students with specific feedback (Washington University of Center for Educational Learning, 2012).

### Dimension of learning assessment

Learning process assessment uses real-world assessment methods to assess student readiness, process, and overall learning outcomes. The

comprehensive assessment of the three components will describe the skills, styles, and learning outcomes of students that may have an impact on teaching about knowledge and educating parents on attitudes (Permendikbud No 22, 2016). The dimension of learning planning contains three indicators. The three indicators are attitude indicators, knowledge indicators, and skills indicators. Further description is explained below.

*Attitude indicator*, are affective and social aspects that exist in the assessment dimension. Competency assessment to measure student attitudes as a result of the learning process. The 2013 curriculum divides attitude abilities into mental and social attitudes (Permendikbud No 22, 2016). The spiritual attitude is related to the formation of loyal and dedicated students. Social attitudes are related to the formation of noble, independent, democratic and responsible students (Bailey et al., 2009; Simamora, 2019). The mental attitude is a way to strength

en the vertical interaction with Almighty God. As a conscious form of consciousness, social attitudes strive to achieve harmony in life (Simamora, 2019).

*Knowledge indicator*, is a cognitive aspect that is in the assessment dimension (Bailey et al., 2009; Simamora, 2019). Knowledge assessment includes the stages of memory, understanding, application, analysis, evaluation, and creation. Knowledge assessment is to determine the achievement of students' knowledge competencies. Knowledge assessment can be used as a mapping of students' learning difficulties and improvement of the learning process. Knowledge assessment can be done through oral tests, written tests, and assignments (Permendikbud No 22, 2016).

*Skill indicator*, are a psychomotor aspect in the assessment dimension (Bailey et al., 2009; Simamora, 2019). Educators assess skill competencies following assessments that require students to delegate certain competencies. Skills assessment according to the 2013 Curriculum includes practice tests, projects, and portfolios (Permendikbud No 22, 2016).

### Dimensions of learning evaluation

Learning evaluation is needed to see all stages of learning with observed standards or indicators (Vickerman, 2007). The dimension of learning planning contains four indicators. The four indicators are indicators of student involvement, indicators of learning support, indicators of learning barriers, and learning strategies. Further description is explained below.

*Student engagement indicator*, There are three points, namely intellectual work, engagement strategy, and speaking. Intellectual work, (1) Students' class work reflects substantial intellectual engagement (reading, thinking, writing, problem-solving, and creating meaning) and; (2) Students master the autonomy of learning to develop, test and improve their thinking. Engagement strategies, (1) Engagement strategies utilize and build on students' academic backgrounds, life experience, culture, and

language to support rigorous and culturally relevant learning, and (2) Engagement strategies They encourage fair and specific student participation and ensure that all students have the opportunity to participate in learning. Speaking, (1) The students' speech reflects the habits of thinking and ways of communicating that are specific to the discipline, and; (2) The students' talk embodies substantive and intellectual thinking (Washington University of Center for Educational Learning, 2012).

*Learning support indicator*, related to all aspects that have a positive impact on learning. Learning support is evaluated starting from aspects of planning, implementation, to an assessment of APE learning during the COVID-19 pandemic (Nurulfa et al., 2021). Evaluation of supporting indicators affects the continuation of the details of aspects that indicate success in future learning.

*Indicator of learning barriers*, related to all aspects that harm on learning. Learning barriers are evaluated starting from aspects of planning,

implementation, to an assessment of APE learning during the CP (Nurulfa et al., 2021). Evaluation of the inhibiting indicators affect discontinuing or correcting the details of aspects that show failure so that future learning will be better.

*Learning reflection indicator*, aimed at two main subjects in learning, namely teachers (as self-evaluation) & students (Hoban & Erickson, 2004; Nurulfa et al., 2021; Simamora, 2019). The teacher evaluates himself as a reflection to improve the APE learning process at the next meeting during the CP. The teacher also evaluates students as a reflection in improving the APE learning process at the next meeting during the COVID-19 pandemic.

*Grand Theory & Literature review Learning Strategies (LS) from APE for CSN during the CP*

1. Grand Theory LS of APE for CSN during the CP The Dimensions & Indicators of Learning Strategies of Adapted Physical Education for Children with Disabilities during the COVID-19 Pandemic are presented in Table 2.

Table 2. Dimensions & Indicators of LS of APE during the CP. Source: Primary Data 2021

No	Dimensions & Indicators of LS	Conclusion (Dimensions & Indicators)
1.	<b>Schunk (2014)</b> Dimensions based on the stages of LS: (1) Analysis; (2) Planning; (3) Implementation; (4) Monitoring; (5) Modification; (6) Metacognitive Knowledge.	<b>(1) Learning Strategy Planning</b> a. Learning strategy assessment. b. Face-to-face learning strategy planning. c. Distance learning strategy planning. d. Hybrid learning strategy planning  <b>(2) Implementation of Learning Strategies</b> a. Conformity with Planning b. Class management c. Student Psychology d. The role of parents  <b>(3) Learning Strategy Modification</b> a. Learning model b. Learning methods c. Instructional Media d. Facilities and infrastructure  <b>(4) Learning Strategy Evaluation</b> a. Strategy Implementation Results b. Barriers to Strategy Implementation c. Advantages of Implementing Strategy d. New Strategy Reflection
2.	<b>Gu (2012)</b> Dimensions of LS: (1) Intentionality & purposefulness; (2) Self-initiation; (3) Awareness, monitoring, and evaluation.	
3.	<b>Owusu &amp; Cobbold (2020)</b> Dimensions in LS Metacognition: (1) Planning, (2) Monitoring, (3) Self-regulation.	
4.	<b>Simamora (2019)</b> Dimensions of modification of LS in the 2013 curriculum in Indonesia: 1. Models: Project-Based Learning, Discovery/Inquiry learning, High Order Thinking Skill, Problem Based Learning. 2. Methods: reciprocal (reciprocity), examples non-examples method, and mind mapping method, inclusive (coverage). 3. Media: Learning pictures or posters, learning information/articles, power points, audio, video. 4. Facilities and infrastructure.	
5.	<b>Molbaek (2018)</b> Dimensions of inclusive LS: (1) Framing; (2) Relational; (3) Organizational; (4) Didactic.	
6.	<b>Mahmood (2021)</b> Classroom management indicators in online LS during the pandemic: 1. Sound and tone management 2. Formulate teaching strategies to improve online classroom interactions 3. Neglected limitations and infrastructure 4. Develop student learning skills in online classes 5. A critical, practical, and creative thinking teaching unit for successful online learning 6. Flexible teaching and assessment policies 7. Backup plan for a pandemic situation 8. Turning large classes into smaller ones in online classes 9. Record online lectures and provide self-study materials 10. Allocate teaching assistants	
7.	<b>Crim, Hawkins, Ruban, &amp; Johnson (2008)</b> Indicators of modification of disability LS: (1) Modification of teaching; (2) Modification of the method; (3) Modification of delivery; (4) Evaluation Modification	
8.	<b>Filiz &amp; Konukman (2020)</b> Planning indicators in physical education LS during the CP: (1) Face-to-Face Scenarios; (2) Distance Education Scenario; (3) Hybrid or Blended Learning Scenarios	
9.	<b>Vickerman (2007)</b> Dimensions of APE Learning Strategies: (1) Appropriate curriculum adaptation; (2) Modification of models and methods; (3) Human resources for adaptive physical education teachers.	
10.	<b>Parczewska (2020)</b> Indicators The role of parents in distance LS during the CP: (1) Parental difficulties and; (2) How to overcome difficulties	

## 1. Literature Review LS of APE for CSN during the CP

### Dimensions of LS Planning

The dimensions of learning strategy planning contain four indicators including (1) assessment of LS; (2) face-to-face LS planning; (3) Distance LS planning; (4) Planning hybrid LS. Further description is explained below.

*Learning strategy assessment indicator*, pay attention to various things that support learning (Gu, 2012; Molbaek, 2018; Schunk, 2014). The principle in the assessment is a collection of learning evaluations as material for consideration in LS planning. Strategies in the assessment as planning support pay attention to the tasks to be given, the form of activities, the characteristics of students, and the methods to be used in learning (Schunk, 2014).

*Indicator of face-to-face LS planning*, this kind of learning during a pandemic is included in the Strict Reduction protocol and is not recommended. Face-to-face learning can help prevent passive/inactive behaviors caused by isolation from negatively affecting society and physical and mental health. However, for physical education, especially indoor activities, it seems difficult to maintain social distancing and avoid contact to control the risk of spreading COVID19. Measures must be taken to prevent or reduce the contamination of students who are at risk in face-to-face education (Filiz & Konukman, 2020). Therefore, seeing the condition of the spread of the virus which is still quite high, the current government does not recommend learning strategies that are planned to be implemented face-to-face during the COVID-19 pandemic. This also applies to learning adaptive physical education for students with disabilities.

*Distance LS planning indicator*, distance class models can be used to maximize continuity of learning. Motivation is the key to the success of distance education. The administration of countries and schools needs to motivate teachers, teachers motivate parents, and parents need to work together to motivate students and ensure continuity of education. Distance education should provide students with information-rich materials and assessments. It is important to involve students in the decision-making process. Students need to be encouraged to challenge and work together to solve problems. During this process, students and parents can be contacted in a variety of ways, including letters, emails, phone calls, and video chats (Filiz & Konukman, 2020).

*Hybrid LS planning indicator*, can also be used to maximize the continuity of mixed class model learning. In the hybrid education model, students teach at home on what day of the week and at school on some days of the week. Some distance lessons, some face-to-face lessons, and lesson time are generally shortened. In the model where students are divided into groups and applied alternately, some are in school and some are in distance learning. Face-to-face lessons generally have an academic character,

while distance lessons include subjects such as music, painting, physical education, and life sciences. Therefore, programs written by physical education teachers are important for understanding the value of instruction (Filiz & Konukman, 2020).

### Dimensions of LS Implementation

The dimensions of implementing LS are related to the use of techniques to improve the learning domain including students' cognitive (Schunk, 2014). Dimensions of implementation the LS contains four indicators. the four indicators are indicators of conformity with planning, indicators of classroom management, psychological indicators of students, and indicators of the role of parents. Further description is explained below.

*Indicator of conformity with planning*, implementation of LS adapted to the dimensions of planning. Here, APE teachers carry out learning strategies according to what was previously planned (Owusu & Cobbold, 2020; Schunk, 2014). However, learning strategies may experience changes in their implementation when used in APE learning for students with CSN.

*Class management indicator*, In learning during the CP, there are at least 10 things to pay attention to (Mahmood, 2021). The 10 points are (1) voice and tone management. One of the salient features of online education is the voice of the teacher. Teachers of online education need to focus more on their voice and vocal function. Teachers know the importance of maintaining a low and practicing vocal function. This is to ensure effective learning for students in online education. (2) Developing teaching strategies to increase the interaction of online lectures through greater interaction in online learning The overall success rate of online lectures is increasing. Participating in online classes is one way to increase participation. You can also increase student engagement by discussing case studies and asking questions. Therefore, schools and teachers need to design ways to develop more interactive online classes. 3) Restriction-ignored infrastructure. Some students do not have basic equipment, such as laptops, necessary for online classes, as we know that the status of students in some parts of the country comes from areas that are not yet developed. The lack of high-speed internet in their area is also a problem. This is the key to preventing students from attending online sessions. The need for specific plans that can overcome these problems; (4) Develop students' learning abilities in online lessons that are completely separate from existing classroom learning. To solve this problem, teachers need to design various activities. These activities can improve students' learning abilities in online lessons. (5) Educational Units-With critical, practical, and creative thinking for successful online learning, faculty and staff need to design more creative learning materials. In short, we need to provide students with more innovative and practical tasks. Students may be asked to provide their thoughts and opinions. This helps develop students' skills and increases the

success rate of online learning. (6) With a flexible teaching and assessment policy, students are not even able to submit assignments or access records of lectures. To overcome these challenges, teachers need to show flexibility and give students extra time. This helps students easily submit their assessments. Schools need to train teachers not to squeeze students out of the pandemic. Teachers, on the other hand, need to provide full support to their students. These supports provide slow submissions with access to online learning and assignment submission. (7) All classes have switched to online mode due to COVID-19, a backup plan for the epidemic situation. The various problems that can occur are systematic and technical. Institutions must always be prepared to overcome this problem and need a backup plan such as Plan B or Plan C to solve this problem without delaying student learning.

(8) In online lessons, you can divide the learning of large lessons into smaller discussion groups to change large lessons into lessons a little and secure concentration. Teachers can prepare online materials for lessons within 30 minutes. The teacher divides the big things into a few small things. This strategy also helps improve student learning skills, such as concentration and attention in online classes. (9) By recording online learning and providing self-study materials, teachers may prepare special platforms (eg, via Google Classroom or at least WA) that contain materials dedicated to pre-classes or all books. After reading material on an online platform, teachers require students to provide understandable answers about whether or not they understand. Additionally, students are required to provide recordings of their online classes. This recording is helpful for students who miss or do not understand any part of the lesson. (10) If there are still teachers who do not have the technical training to run online lectures smoothly in the region of any country, we will assign a teaching assistant. Therefore, schools need to support mainstream (low-tech) teachers with the help of assistant teachers. These assistant teachers can ensure that online sessions run effectively and successfully. Teachers also need to talk to training before class about what resources to share before class. You also need to discuss issues such as how to manage question and answer sessions (discussion).

*Student psychological indicator*, During the CP, what is often seen is related to interest & motivation to learn (Molbaek, 2018; Nurulfa et al., 2021; Snowman, 1986). Interest in learning, which students have has an impact on the online learning process in APE subjects. Students' interest in learning is shown in their interest in participating in learning, high concentration on the learning process, having extensive knowledge in the field of sports, and high awareness of learning sports material to obtain satisfactory grades. Learning motivation influences online learning. This can be interpreted that the learning motivation of students has an impact on the online learning process in adapted physical education subjects. Next is learning motivation, this is what encourages students to achieve the desired results.

This desire for students is formed from the ability of students to practice and create their movements at home by looking for sources from social media (Nurulfa et al., 2021; Schunk, 2014; Vickerman, 2007). Therefore, students are expected to be more active and creative in online learning, but still within the scope of the material presented by the teacher. Therefore, together, interest in learning and motivation to learn, affect online learning. This can be interpreted that the interest in learning and learning motivation of students have an impact on the online learning process in APE subjects. Interest and learning motivation are interconnected, where interest is interest and motivation is encouragement so that when both are together at the same time, it has an impact on improving the learning process. Both are needed in the learning process, especially in online learning.

*Parental role indicator*, in distance learning during the CP, there are two main aspects, namely the difficulties of parents and how to overcome difficulties (Parczewska, 2020). Parenting difficulties, CP is a difficult situation and all changes have some basic common characteristics. Individuals lead to unpleasant experiences and emotional states. Strong mental tension is a reaction to the excessive mental load. Difficult situations that can lead to various adjustment disorders include: It is inherent in the characteristics of work. Individual; he thinks they are closely related (Parczewska, 2020). Here's how parents overcome difficulties. The home learning provided by parents during CP can be studied within the framework of an interactive model of coping with difficult situations. Commonly used models include (1) task-oriented styles, (2) emotion-oriented styles, and (3) solution-oriented styles. A task-oriented style of trying to change a situation achieved by cognitive change, i.e., an effort to solve a problem (task execution), is thought to be difficult. It is characterized by a belief in the effectiveness of actions taken and a belief that at least some problems and requirements are difficult, focusing on the difficulties and finding ways to solve them. Hard work, dedication, and circumstances worthy of dedication. Difficult situations are treated as assignments by respondents. By planning solutions and performing tasks, you increase your sense of control over the situation and reduce the occurrence of negative emotions (Parczewska, 2020).

### **Dimensions of LS modification**

The dimension of LS modification contains four indicators. The four indicators are indicators of learning models, indicators of learning methods, indicators of learning media, and indicators of facilities and infrastructure. Further description is explained below.

*Learning model indicator*, where the learning model can be interpreted as a series of activity plans, including strategies and the use of existing learning resources, ranging from teachers, students, school institutions, parents, to the surrounding community in the learning process. Learning models that can be

taken in APE subjects according to the 2013 curriculum in Indonesia are as follows discovery/inquiry learning, project-based learning (PjBL), problem-based learning (PBL), and high order thinking skills (Simamora, 2019). The learning model modification domain represents a small group of adaptations that might be recommended for students requiring special education services (Crim et al., 2008). This particular modification refers to the curriculum content and testing situations of certain state-mandated standards.

*Indicator of learning methods*, The methodological domain consists of individual modifications that represent a specific approach to learning as well as the structure of the environment. Behavioral approaches and common LS are found in the methodological domain (Crim et al., 2008). Learning methods that are often used in adaptive physical education learning in the 2013 curriculum are reciprocal (reciprocity), examples of non-examples method, mind mapping method, and inclusive (coverage) (Simamora, 2019). Then the domain of this indicator is certainly related to modifications according to these methods.

*Learning media indicator*, which learning media is defined as a tool in the process of learning (Simamora, 2019). Because learning media contains everything available to students' thoughts, feelings, concerns, and skills, students can facilitate the implementation of the learning process. APE learning activities use appropriate learning media. If schools do not have and provide learning media, teacher creativity is needed to modify APE learning media. Teachers must adjust learning materials so that the expected competencies are achieved. Some of the media that can be used in learning APE are as follows: learning pictures/ posters, learning information/articles, power points, audio, and video (Simamora, 2019).

*Indicator of facilities and infrastructure*, APE learning requires facilities and infrastructure to achieve learning objectives effectively and efficiently. Availability of resources including facilities, equipment, and maintenance of student care and support for learning purposes. In APE learning, it is necessary to provide facilities to perform large muscle activities such as shooting, throwing, and catching. Ideally, learning activities use appropriate facilities and infrastructure. If schools do not have and provide facilities and infrastructure, teacher creativity is needed (Simamora, 2019). Teachers can modify facilities and infrastructure to support APE learning activities. For example, javelin equipment can be replaced with rockets in throwing sports. Teachers can also choose PA according to the availability of facilities and infrastructure. The selection of this PA must take advantage of the expected competitiveness. Then the use of the platform is part of the use of online learning facilities and infrastructure. Online platforms that are often used include Facebook, Google Classroom, Google Meet, Microsoft Teams, Telegram, WhatsApp, and Zoom Cloud Meetings (Nurulfa et al., 2021).

## Dimensions of LS evaluation

The dimension of LS evaluation contains four indicators. The four indicators are indicators of the results of strategy implementation, indicators of barriers to strategy implementation, indicators of the benefits of implementing strategies, and indicators of reflection of new strategies. Further description is explained below.

*Indicator of strategy implementation results*, related to all aspects of the acquisition of the implementation of learning strategies. The results of implementing learning strategies are evaluated starting from aspects of planning, implementation, to modification of APE learning strategies during the CP (Mahmood, 2021). Evaluation of performance indicators affects the persistence of details such as obstacle factors and benefits aspects, thus giving access to the potential for future learning success.

*Indicator of barriers to strategy implementation*, related to all aspects that harm LS. Barriers to LS were evaluated starting from aspects of planning, implementation, to modification of adaptive physical education learning during the CP (Owusu & Cobbold, 2020). Evaluation of the indicators of barriers to implementing LS affect stopping or improving the details of aspects of strategies that show obstacles or failures so that future learning will be better.

*Indicator of the advantages of implementing the strategy*, related to all aspects that have a positive impact on LS. The advantages of LS are evaluated starting from aspects of planning, implementation, to modification of adaptive physical education learning during the CP (Owusu & Cobbold, 2020). The evaluation of merit indicators implementing LS influences the persistence of details of aspects of the strategy that represent gains or success, so that future learning becomes better.

*New strategy reflection indicator*, namely with the teacher evaluating the results of implementing the strategy as a reflection to improve the APE learning process at the next meeting during the CP. Teachers who have evaluated the strategy as a reflection in continuing or creating new LS at the next meeting APE during the CP (Nurulfa et al., 2021; Simamora, 2019).

## Conclusion

Based on the literature review and grounded theory of the two variables revealed in this study, namely: 1) LI of APE for CSN during the CP, and; (2) LS of APE for CSN during the CP, it is concluded that the two variables have a more detailed description into dimensions and indicators.

LI of APE for CSN during the CP, namely 1) Dimensions of learning planning: indicators of curriculum use, assessment indicators, indicators of the preparation of learning tools, and indicators of learning strategies; 2) Dimensions of learning implementation: indicators of learning steps, indicators of learning activities, indicators of time

allocation, and indicators of learning modification; 3) Dimensions of learning assessment: attitude indicators, knowledge indicators, and skills indicators and; 4) Dimensions of learning evaluation: indicators of student involvement, indicators of supporting learning, indicators of inhibiting learning, and indicators of learning reflection.

LS of APE for CSN during the CP, namely 1) Dimensions of learning strategy planning: learning strategy assessment indicators, face-to-face learning strategy planning indicators, distance learning strategy planning indicators, Hybrid learning strategy planning; 2) Dimensions of implementing learning strategies: indicators of conformity with planning, indicators of classroom management, psychological indicators of students, and indicators of the role of parents; 3) Dimensions of Learning Strategy Modification: Learning Model indicators, Learning Method indicators, Learning Media indicators,

Facilities and Infrastructure indicators; 4) Dimensions of evaluation of learning strategies: indicators of strategy implementation results, indicators of barriers to strategy implementation, indicators of advantages of implementing strategies, and indicators of reflection of new strategies.

These findings contribute as material for further studies for the manufacture of instruments up to the point based on the dimensions of implementation and strategies APE for CSN during the CP.

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#### Conflict of Interests

Researchers said there was no conflict of interest in the study. Researchers said there was no conflict of interest in the study.

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