Inclusive education in Indonesia has been executed for more than a decade. However, there are many obstacles in its implementation, one of which is curriculum adaptation. The purpose of this study is to understand adaptive learning and determine the challenges experienced by teachers concerning the implementation of inclusive education. A sequential explanatory mixed-method research approach was used. This design type combines quantitative and qualitative data. The data were collected using questionnaires presented to 72 teachers from inclusive schools in Malang. The information gathered from the questionnaires enabled the researcher to develop interview questions that were given to 72 respondents. The findings showed that several teachers did not understand and implement curriculum adaptation for CSN in inclusive classes. In addition, some challenges still experienced by teachers regarding the implementation of inclusive education include the diversity of students, difficulties in teamwork to adapt the curriculum, and learning methods that are still difficult to be understood by teachers. Furthermore, it also got various learning modifications due to the diverse conditions of students and the lack of facilities in the school to support them. Inclusive education should provide appropriate services for CSN, as well as accommodate the diversity of CSN in the classroom.

**Key words:** Teacher knowledge, Inclusive education, Curriculum adaptation, Children with special needs

**Introduction**

Several countries in the world declare “education for all” for children with special needs in public schools (Kozleski, Yu, Satter, Francis & Haines, 2015). Provisions contained in the Education Act
for children with special needs (IDEA, 2004) emphasize that normal children also follow the same curriculum. However, if modifications are needed, they must be modified according to specific obstacles and the modification on the curriculum must be done by the teacher directly in the class (Yada, Tolvanen & Savolainen, 2018; Lee, Wehmeyer, Soukup & Palmer, 2010). Learning materials can be adjusted according to the abilities of each child so that CSN and normal children can learn side by side and together in inclusive schools (Biklen & Burke, 2006; McLeskey, Waldron & Redd, 2014).

Even CSN with severe categories can learn with adjustments in terms of learning and behavioral characteristics, broad educational support needs, and the assessment of learning that requires modification (Kurth, Lyon & Shogren, 2015). Teachers are expected to provide learning assistance in the form of assessments that support students with special needs to be active in attending learning activities in class (Giangreco, 2016). In inclusive classrooms, teachers need to be flexible and differentiate each child’s diverse abilities and must be able to accommodate the children’s diverse learning abilities, since there are various CSN with various needs in inclusive classrooms (Kurth & Keegan, 2014). One alternative learning that designs children’s diverse needs in the classroom is Universal Design Learning (UDL), which is a learning activity that accommodates children with special needs so that they can learn together with their friends in regular classes (Lowrey, Hollingshead, Howery & Bishop, 2017). Other than that, in inclusive learning, teachers should be able to provide many kinds of learning to accommodate all of the students in the class (Dessemontet, Sermier, Bless & Morin, 2012; Downing & Peckham-Hardin, 2007). This alteration can be interpreted as how a teacher can change or modify the learning method to accurately meet the learning needs of CSN, and the learning method can be in accordance with the learning needs of the children due to the diversity of the students in inclusive classrooms (Tarnoto, 2016). Based on the initial observation in inclusive classes, the respondents saw a second grader with special needs try to learn math on the subject of addition of hundreds, but the child can only count numbers from 1 to 50, therefore the material provided to the child was adjusted according to his/her ability.

The adjustment aims to provide facilities and assistance for CSN to study in inclusive classes with their peers (Kurth & Keegan, 2014). In addition, these students can also study in class with their regular friends to improve their abilities, both academically and in other behaviors (Valeeva, 2015; Lee et al., 2010). Besides, applied learning adaptation can be improved by seeing students’ abilities continuously and the learning must be implemented in the heterogeneous class (Widyasari & Novara, 2018; Hedeen & Ayres, 2002; Ryndak & Morrison, 1999). This alteration requires special skills that teachers need to master so that the curriculum adaptation will be useful for students with special needs. And teachers must be able to accommodate students’ needs in the class (Zulfija, Indira & Elmira, 2013). This study was intended to find out teachers’ understanding on curriculum
adaptation for children with special needs to be able to study in regular classes together with normal peers in an inclusive class (Sudarto, 2017; Lee et al., 2010; Wehmeyer, Lattin, Lapp-Rincker & Agran, 2003).

In adapting the curriculum, a collaboration between the education team is needed to provide accommodative learning for all kinds of students (Meltz, Herman & Pillay, 2014). Sudarto (2017) found that it is not only adaptation that is needed in dealing with CSN but also how to provide learning material that is suitable for the child’s condition and to study in a child-friendly class or learning for all. For this matter, this study was conducted to improve the understanding of how curriculum adaptation is carried out for children with special needs in regular classes so that they can gain learning in inclusive classes. In addition, it was purposed to explore information about curricular adaptation, instructional support, and participation support in inclusive classes, as well as what obstacles are experienced by teachers in implementing inclusive education.

Method

A sequential explanatory mixed-method approach was used to investigate adaptive learning and determine the challenges experienced by teachers. This design type combines quantitative and qualitative data, “allowing for the strengths of both types of data to add richness to the findings” (Maree, 2012:59). The quantitative research design comprises the steps that a researcher needs to take by obtaining information from people with insight into the topic that is researched in order to answer the research question. One of the most common ways used to obtain information from subjects is a questionnaire (Joubert, Hartell & Lombard, 2015:295-300). The data were collected using closed- and open-ended questionnaires that outlined twenty-one (21) items presented to 72 teachers from inclusive schools in Malang as respondents concerning the implementation of inclusive education. The information gathered from the questionnaires enabled the researcher to develop open- and closed-ended interview questions that were given to 72 respondents who were selected randomly based on schools that already implement inclusive education. Interviews form part of qualitative research and enable the researcher to gain insight into research that intends to holistically understand phenomena about what is experienced by respondents such as behavior, perception, motivation, action, etc., (Hadi & José Closs, 2016; Maxwell, 2020). According to Maxwell (2014), open-ended questions are questions that describe the choice for the interviewee to respond openly and freely. Responses can be in two words or two paragraphs. While close-ended questions are closed questions that limit the response of the interviewee.

Percentage analysis on each of these items is used to describe the most crucial statements regarding teachers’ responses towards the understanding of curriculum adaptation in inclusive schools and the perception of teachers to apply curriculum adaptation. The questionnaire questions were filled
by respondents to reveal the challenges experienced by regular teachers in implementing inclusive education. These questionnaires were given to the respondents after they had participated in training on inclusive learning. The training was organized by Universitas Negeri Malang in collaboration with the Malang Education Office. The training was conducted to improve the competence of regular school teachers when implementing learning in inclusive education settings. The training activities were done with lectures, questions and answers, discussions, and opportunities to try to practice simple learning planning from diverse classroom conditions. These results need to be revealed, especially regarding the opinions of regular school teachers after the training, to find out the crucial aspects of inclusive learning that need to be further explored and improved. The level of teachers' perception based on the data obtained from the distributed questionnaire were categorized as insufficient if found in the range of 0-35%; in the category of average in the range of 36-65%; and the category of sufficient in the range of 66-100%. This data gathered from the questionnaires was intended to display the most difficult problems dealt with by regular teachers. The data analysis of the questionnaires enabled the researcher to develop open-ended interview questions to determine the challenges experienced by teachers related to inclusive education and perception of teachers teaching in an inclusive classroom environment. This analysis was conducted to obtain the data suitable for this study.

Results and discussion

The results of this study were aimed at successively answering the following related issues: teacher perceptions in curriculum adaptation which include curricular adaptation, instructional support, and participation support; the perception of regular teachers when having to adapt the curriculum; as well as the challenges faced by regular teachers to implement inclusive education. The understanding of inclusive school teachers about curriculum adaptation in inclusive schools is presented in Table 1.
Table 1: Teachers’ responses towards the understanding of curriculum adaptation in inclusive schools

<table>
<thead>
<tr>
<th>Number</th>
<th>Aspects of teachers statements about curriculum adaptation</th>
<th>Percentage</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>An inclusive school is a school that includes CSN in its classes</td>
<td>40.2%</td>
<td>Average</td>
</tr>
<tr>
<td>2.</td>
<td>Curriculum adaptation consists of three components, they are: curricular adaptation, instructional support, and participation support</td>
<td>32.7%</td>
<td>Insufficient</td>
</tr>
<tr>
<td>3.</td>
<td>The purpose of curriculum adaptation is to provide learning materials that are suitable to CSN in an inclusive class</td>
<td>31.1%</td>
<td>Insufficient</td>
</tr>
<tr>
<td>4.</td>
<td>Teachers conducted varied learning for disabled students</td>
<td>40.1%</td>
<td>Average</td>
</tr>
</tbody>
</table>

Table 1 portrays the teachers' responses toward their understanding of curriculum adaptation in inclusive schools. Based on Table 1, it can be concluded that the competence of regular teachers in understanding curriculum adaptation in inclusive schools is insufficient. For this reason, the results in this context are then presented in the form of actions taken by teachers regarding the adaptation of the curriculum in inclusive schools. Teachers’ perceptions about student diversity are the basis for determining aspects of competency that need to be addressed in inclusive learning training for regular teachers. A teacher must be able to provide accommodative learning for all students with no exception (Tarnoto, 2016). This perception is related to the reasons put forward by teachers, namely as a particular handicap and as a challenge to carry out learning in inclusive classrooms with curriculum adaptation, which is presented in Table 2.

Table 2: Perception to apply curriculum adaptation

<table>
<thead>
<tr>
<th>Number</th>
<th>Aspects of teachers statements on the implementation of curriculum adaptation</th>
<th>Percentage</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Changes on additional objectives</td>
<td>42%</td>
<td>Average</td>
</tr>
<tr>
<td>2.</td>
<td>Changes on the modified objectives</td>
<td>50%</td>
<td>Average</td>
</tr>
<tr>
<td>3.</td>
<td>Changes on alternative objectives</td>
<td>48%</td>
<td>Average</td>
</tr>
<tr>
<td>4.</td>
<td>Instructional changes</td>
<td>50%</td>
<td>Average</td>
</tr>
<tr>
<td>5.</td>
<td>Alternative changes</td>
<td>47%</td>
<td>Average</td>
</tr>
<tr>
<td>6.</td>
<td>Accommodation</td>
<td>40%</td>
<td>Average</td>
</tr>
<tr>
<td>7.</td>
<td>Modification</td>
<td>50%</td>
<td>Average</td>
</tr>
<tr>
<td>8.</td>
<td>Personal Support</td>
<td>48%</td>
<td>Average</td>
</tr>
</tbody>
</table>

Table 2 provides information that the perception of regular teachers in implementing curriculum adaptation is sufficient, but it still requires skills in adapting the curriculum. Overall, the average
perception of the application of curriculum adaptation is 47 percent. The distribution of the value of eight aspects from teacher statements is about 40 – 51 percent. The lowest value is curriculum accommodation with a value of 40 percent. Meanwhile, the highest value is in the change on the modified objectives with a value of 51 percent. Another finding found that the modification of the objectives was pursued by team collaboration with teachers for disabled students. Whereas in accommodating, teachers do not have the foundation to identify children with special needs. Teachers feel that the diversity of students, which vary widely, result in difficulties for teachers in implementing specific curriculum adaptation.

The challenges experienced by regular teachers in implementing learning in inclusive classes are related to the learning approach. That learning approach is an implication to accommodate the diversity of students in regular schools (Meltz et al., 2014). Table 3 outlines the implementation of learning in inclusive classes, the most difficult aspect is the diversity of students, due to the lack of teacher knowledge on learning strategies in inclusive classes (Love, Baker & Devine, 2019). This is a challenge for teachers to be able to carry out learning in the face of diverse students.

Table 3: Challenges experienced by teachers related to inclusive education

<table>
<thead>
<tr>
<th>Number</th>
<th>Challenges experienced by teachers</th>
<th>Percentage</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Students diversity</td>
<td>19%</td>
<td>Insufficient</td>
</tr>
<tr>
<td>2.</td>
<td>Teamwork</td>
<td>20%</td>
<td>Insufficient</td>
</tr>
<tr>
<td>3.</td>
<td>Learning method</td>
<td>22%</td>
<td>Insufficient</td>
</tr>
<tr>
<td>4.</td>
<td>Learning modification</td>
<td>24%</td>
<td>Insufficient</td>
</tr>
<tr>
<td>5.</td>
<td>School support facilities</td>
<td>30%</td>
<td>Insufficient</td>
</tr>
</tbody>
</table>

Table 3 illustrates the challenges experienced by teachers in implementing inclusive learning, these challenges were divided into five aspects presented in Table 3. Overall, the average value from the aspects of challenges experienced by teachers is 14 percent, it can be said that the readiness of teachers in facing the challenges is insufficient. The distribution of values from the five aspects of challenges is around 19 - 30 percent.

From these aspects, the problem identified as the reason was the diversity of students. Based on the results of the interviews, most of the teachers acknowledged that the difficulties associated with student diversity were on understanding the characteristics of students with disabilities and curriculum adaptation (Zagona, Kurth & Macfarland, 2017). Based on learning experiences, the difficulty of curriculum adaptation is emphasized on students with intellectual development disabilities, students with socio-emotional disorders, and students with sensory disabilities.
The next challenge is related to teamwork between the class teachers to adapt to the curriculum. In inclusive learning, classroom teachers are required to work closely with special education teachers to design learning that is relevant to the needs of children due to CSN different abilities, thus collaboration is needed to adapt the curriculum in accordance to accommodate the learning and study needs of CSN. For example, a student is in grade 4 of elementary school, but his ability is still not able to follow the level according to his class. So it is expected that class teachers and special education teachers are able to work together to design materials so that learning can be suitable for this student (Milteniene, 2018).

The next problem is related to learning methods. Before class learning begins, class teachers and special education teachers discuss the learning material to be taught. The task of the classroom teacher is to look at the competencies that students will achieve during the learning process within 1 semester, while the special education teacher explains the ability profile of students based on the results of the initial assessment. If it is considered that the child will not be able to follow his friends to learn in class, the class teacher and special education teacher restructure learning competencies that adapt the CSN conditions (Zagona et al., 2017). This challenge occurs because teachers feel unable or do not have the required competence (Tarnoto, 2016).

Learning modification for CSN should be done by teachers to be able to provide accommodative learning. After CSN have been accepted at schools, the first step taken by teachers should be to arrange learning that is suitable for CSN, starting with preparing lesson plans and modifying learning materials. In preparing the lesson plan, it is better for class teachers and special education teachers to jointly design accommodative learning so that CSN can take part in the future. After the lesson plans are arranged together, the next step is to modify the learning in accordance with CSN needs. This modification can be in the form of material modification. (Nel, Engelbrecht, Nel & Tlale, 2013).

School support facilities are supporting services provided in schools to help CSN to study conveniently. One example is facilities and infrastructure (Nel, Engelbrecht, Nel & Tlale, 2013). Infrastructure facilities are things that must be equipped to support learning. In inclusive schools, there should be a lot of aspects that need to be prepared related to facilities and infrastructure, for example reclining floors for wheelchair users and children with physical motor disabilities, or guiding blocks for children with visual impairments so they can walk safely in the school area without being disturbed by their friends, or classes with fewer accessories for children with Attention Deficit Hyperactivity Disorder (ADHD) so that their concentration will not be disturbed. Thus, school support facilities are school facilities that can support learning so CSN can study in safe and comfortable conditions.
The purpose of this study was to determine teacher understanding of curriculum adaptation in inclusive schools and the challenges experienced by teachers concerning the implementation of inclusive education. This problem arises from the research that schools are not ready to accept the decision of the government to implement inclusive education in regular schools (Junaidi, 2019). In addition, regular teachers are not ready to teach children with special needs and manage diverse students in inclusive classes (Mumpuniarti, Handoyo, Phytanza, & Barotuttaqiyah, 2020). Handicaps experienced by regular teachers are difficulties in curriculum adaptation and challenges in its implementation. Curriculum adaptation is the main step teachers need to take in order to provide learning that is suitable for the needs of children in inclusive classes. Based on the objectives and background of the problem, the results of this research that need to be answered/discussed include:

- Regular teachers should be competent to handle students’ diversity from various aspects;
- The ability of regular teachers to manage learning needs in class with diverse students can be in the form of curriculum adaptations carried out by the teacher so that CSN in inclusive classes can participate in learning activities as well;
- Obstacles faced by regular teachers are in terms of managing student diversity that consists of diversity of student conditions in the class, teamwork, learning methods, learning modification, and school support facilities.

This phenomenon has become inherent in the minds of regular teachers, that implementing inclusive education will be difficult when dealing with diverse CSN.

Student diversity is a stimulus for classroom teachers to increase sensitivity to the characteristics of students with disabilities (Ummah & Susilawati, 2017). The encountered problems in class are mostly involving students with intellectual development disabilities, students with social-emotional and behavioral disorders, and students with sensory disorders. The diversity of the students in an inclusive class obliges the teacher to accommodate all of the needs of the students in the class, because the learning activity is conducted at the same time (Hagiwara et al., 2019). After all, regular school teachers have not been prepared to have personal sensitivity in dealing with children with special needs (Zulfija et al., 2013). Ideally, all teacher candidates in regular schools should be equipped with knowledge of teacher competencies about the diversity of students in inclusive classes because teacher’s competence also needs to be honed before accepting CSN in an inclusive class (Sulistyadi, 2014). However, many regular teachers do not have the competencies to teach in inclusive classes, so those teachers still find it difficult to provide material according to the special needs of the CSN in the class (Tarnoto, 2016). If the school has implemented an inclusive system, then the teachers should have appropriate learning competencies to provide treatment for CSN. Competencies that teachers should possess must be used to explore
the abilities of students with special needs in inclusive classes (Kaur, Noman & Awang-Hashim, 2016; Tiwari, Das & Sharma, 2015).

Lately, many students experience cognitive, behavioral, or emotional problems which become challenges in terms of learning difficulties in inclusive classes (Kaur et al., 2016). The main problem in students with cognitive difficulties is understanding. For this reason, teacher competency must also include the ability to correctly identify student conditions to provide appropriate learning directions (Alsamiri, 2018). The ability of teachers in inclusive classes also need to be complemented by the context of the materials related to daily activities as well as to answer the need for solutions to cognitive difficulties in the students, because inclusion is not merely mixing students to study, but to accommodate the learning process (Maria, 2013; Peltopuro, Ahonen, Kaartinen, Seppälä & Närhi, 2014). The competence of regular teachers in inclusive classes is the ability to deal with student diversity from various aspects. It proves that teachers have acknowledged that implementing inclusive education requires qualified pedagogical competence (Zagona et al., 2017). The mastery of inclusive pedagogy that is needed by teachers must be related to the challenges experienced by teachers and considered to be the most difficult, namely facing the diversity of students in inclusive classes (Sudarto, 2017). Understanding student characteristics and the ability to make a motivational approach to students with disabilities is an important skill in mastering inclusive pedagogical competencies (Lowrey et al., 2017). Other skills that support pedagogy in inclusive classrooms are teachers’ personal sensitivity in dealing with disabilities and cultural responsiveness in dealing with students with special needs in the classroom to create an inclusive class (Dessemontet, Sermier, Bless & Morin, 2014; Cartledge & Kourea, 2008).

The urgency of adaptive learning for students with disabilities is to accommodate their challenges in learning. Learning modification for students with sensory disabilities is compensation access of sensory function, learning modification for students with intellectual development disabilities is the adjustment of learning objectives, and learning modification for students with a social-emotional and behavioral disorder is a learning scenario based on tasks analysis on their behavior (Dewantoro, Muslihati, Pradipta & Susilawati, 2020). Teachers should be sensitive to the learning needs, ways of learning, expectations in learning, and expectations built from family backgrounds in students with disabilities. That sensitivity is coupled with cultural responsiveness (McLeskey, Waldron & Redd, 2014). Meaning, teachers are expected to be sensitive to the learning needs of students with disabilities based on knowing how to respond to students individually based on the cultural background of students with disabilities. Student diversity has the highest percentage related to challenges which are considered as the most difficult by a teacher. This fact shows that the competence of inclusive pedagogies is a challenge that requires improvement. Student diversity can be understood by the way the teacher listens to students’ stories about themselves and their
friends from the student’s perspective. This view of inclusive education must be approached with social construct and human rights (Chrysostomou & Symeonidou, 2017).

Teachers need to explore inclusive education from the perspective of social construction and human rights. The teacher’s challenge in facing student diversity is related to their competence in differentiated learning. This challenge is a paradigm related to innovation in learning (Kennette & Wilson, 2019). Teachers should always renew competence in his/her professional development. Obstacles in implementing inclusion are reasonable obstacles in other professional tasks (Retnawati, 2016). The next problem experienced by teachers in implementing inclusive education is the problem related to the difficulties of diverse teaching methods and curriculum modifications. The competency aspects that should be possessed by teachers must have several abilities, including: (1) perception of appropriate instructional strategies in inclusive classes; (2) teacher readiness in teaching CSN students; (3) developing professional learning abilities for students with special needs in inclusive classes; and (4) collaboration skills between regular teachers and special education teachers (Meltz et al., 2014). Inclusive teachers need to be competent to conduct assessments for students with special needs to determine their learning programs, and then modify the materials to suit the student’s special needs in the class, and collaborate with students who are considered capable of being peer tutors (Mumpuniarti, Handoyo, Phytanza & Barotuttaqiyah, 2020). In addition, increasing the professional competencies of inclusive teachers can be done by finding solutions for students and parents in handling CSN in class. These conditions can be an approach to bridge teacher’s expectations in inclusive learning, which if achieved can be the achievement of teacher satisfaction (Chrysostomou & Symeonidou, 2017).

Conclusion

Curriculum adaptation is very important in inclusive classes, the main foundation in curriculum adaptation is that teachers must have a disability perspective in inclusive learning. Many teachers in inclusive classes do not yet understand the importance of curriculum adaptation. If seen further, curriculum adaptation is the initial activity that should be done by the teacher in dealing with CSN in class. The teacher also has not fully adapted to the inclusive class because the teachers’ understanding of this matter is still lacking. Challenges experienced by teachers related to the management of learning in dealing with CSN in the classroom are including the diversity of students, teamwork between teachers in dealing with CSN, learning methods undertaken by teachers, learning modification, and support facilities from schools which are also still low. Teachers in inclusive schools need the competencies to manage the diversity of students in inclusive classes by applying assessment, diverse teaching methods, and curriculum modifications. The urgency of curriculum adaptation is on learning for students with sensory, intellectual, social-
emotional, and behavioral disabilities, whereas students with physical-motor disabilities can be supported with school facilities.
REFERENCES


