Involvement of Teachers in Inclusive Schools for Quality Learning Design and Quality Student Learning

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Abstract: Developing quality learning in inclusive schools is an essential issue for educators. Several aspects that need to be considered to create quality learning in inclusive schools are assessment, lesson planning, good classroom management, learning materials and media development, implementation of accessible education using appropriate technologies and evaluation. These aspects are essential parts that must be appropriately addressed to produce quality learning. This study uses a mixed explanatory sequential design. Quantitative research instruments were used to collect data from 100 teachers on teacher involvement in quality learning in inclusive schools. The results of this study describe the condition of teacher performance in inclusive schools in developing quality learning. Involvement and collaborative efforts between teachers appear below. In this case, knowledge is more of a differentiating factor determining who does what in the learning and design process, while the universal learning rules are still not being fully implemented. This condition may influence the quality of learning for students with disabilities. It is hoped that future research will examine teachers' attitudes and increase their efforts in developing quality learning for students with disabilities. Moreover, the principles of implementing UDL need to be integrated into the inclusive education curriculum in Indonesia.

Keywords: work engagement, teachers; inclusive school, quality of learning, Universal Design of Learning.

Introduction

Inclusive schools provide learning services for children with disabilities (Parey, 2019; Schwab et al., 2020). One purpose is to exercise their right to study alongside other students. Indonesia has had an inclusive education system in place since 2000 and the government has enacted legislation to control the implementation of inclusive education. This intends to massively support the establishment of inclusive schools. This has had a considerable impact on special education services, which are becoming more widespread in many places. The growing number of inclusive schools will enhance community acceptance of children with impairments who participate in learning (Hernández-Torrano et al., 2020; Jardí et al., 2022).

However, this increase brings practical demands since schools must be able to provide quality learning activities, including for students with disabilities (Bakkenes et al., 2010; Govindasamy, 2001; Minou, 2011). Children with impairments have learning disabilities because of intellectual, mental, sensory and/or motor issues. These circumstances necessitate teachers developing learning based on

their students' traits and requirements. Pupils with disabilities can study in the same class as other pupils in Indonesia.

Therefore, developing quality learning in inclusive schools is an essential issue for educators (Rodríguez et al., 2022) and modification of the curriculum encompasses all teachers who play a part in inclusive education (Baartman et al., 2007). Recently, the utility of UDL (Universal Design for Learning) has been much analysed for its application in inclusive schools (Izzo, 2012; Ciasullo, 2018). UDL implementation works in tandem with the principles of accessible learning and the use of technology to facilitate learning both face-to-face and through online learning systems. UDL ensures that all students have an equal chance of success. Meeting these demands, however, necessitates the participation of all role-players in the design and implementation processes. In Indonesia, inclusive schools employ special assistant instructors in addition to classroom teachers or topic teachers (Robinson, 2017; Baeten & Simons, 2014). Assistant instructors, in general, have a specific educational background and have responsibility for supporting students with disabilities throughout their learning activities. Recently, interest in instructional design has accelerated and is increasingly being applied in both offline and online contexts.

This study examines the involvement of classroom teachers or subject teachers with special assistant teachers in physical school settings. The level of collaboration between teachers can indicate the quality of learning in inclusive schools (Vangrieken et al., 2015; Butler et al., 2004). This study is an essential input for future improvements in the form of study plans, learning media, appropriate use of appropriate technology and accessibility of learning for students with special needs.

Literature Review

The educational setting called Inclusive School is a school that includes children with special needs in all learning activities (Nilholm, 2021). In addition, inclusive schools must also grow with an inclusive culture, where every school stakeholder, whether community members, teachers, principals, foundations, employees, or administrative officers, is responsible for educating and serving in the process of developing the potential of students (Jauhari, 2017).

The implementation of inclusive schools must be supported by three important factors: government policies, the establishment of a friendly environment for persons with disabilities, and the competence of practitioners (Booth et al., 2002). These three factors are important domains that can support the formation of quality learning.

Discussing quality learning is closely related to the curriculum that has been established. The curriculum in inclusive schools is, in theory, universal. The curriculum gives all children access to learning, based on their needs and characteristics, whether from textbooks, literary works, study materials or other elements (Setiawan & Nurbani, 2023). Inclusive schools, on the other hand, include children with impairments who have a variety of different, or additional, support needs. As a result, every instructor must be able to construct accessible learning designs for them. UDL has long been implemented in various countries in inclusive education settings. Learning with a universal design allows each student to easily follow the lesson without having to adapt individually (King-Sears, 2009). However, applying UDL in inclusive schools requires special competencies for teachers.

Indonesia has been attempting to develop an inclusive education system since the 2000s. This is an initiative to promote equal educational distribution for all children, including those with disabilities. However, in the current situation, many teachers lack the necessary skills to deal with pupils with disabilities. Meanwhile, instructors with specific educational backgrounds in all regions have been unable to meet the needs of teachers in special schools (segregation system). This has caused the government to create several policies to maintain its ability to run an education system that includes learners with disabilities in inclusive schools (Irvan & Jauhari, 2018). One policy stipulates two categories of teachers working in inclusive schools: classroom teachers and special assistant teachers. Classroom teachers are in charge of carrying out learning activities in the classroom in general. Meanwhile, special assistant teachers are tasked with assisting students with disabilities who require special support in learning settings (Berlinda & Naryoso, 2018).

The creation of appropriate learning designs necessitates a significant amount of effort. This is because learners with disabilities have a wide range of conditions and characteristics. In theory, the low number of teachers with special capabilities in teaching children with impairments poses a significant hurdle in achieving this goal. These difficulties, however, can be mitigated via effective teacher collaboration. Although the two teachers in inclusive school classrooms have different responsibilities, their active participation is critical to achieving quality learning. Collaboration between classroom teachers and special assistant teachers can include sharing knowledge about student characteristics, establishing lesson plans, creating learning resources in a variety of formats, implementing learning and evaluating all students comprehensively (Miltenienė & Venclovaitė, 2012). Special assistant teachers are generally competent to provide interventions for students with disabilities. This must be underpinned by their attitudes and efforts to collaborate to keep learning conducive to learners with disabilities (Pit-ten Cate et al., 2018). Based on this theory, it is assumed that the collaboration of the two teachers plays a key role in realising quality learning in inclusive schools.

Class teachers are educators/teachers in certain classes in inclusive schools with the following main tasks: a) Creating a conducive learning climate so children feel comfortable learning in class/school; b) Developing and carrying out academic and non-academic assessments on all children to determine their abilities and needs c) Developing an individual learning plan/programme with the help of a special assistant teacher; d) Carrying out learning, assessment, and follow-up activities following the predetermined learning plan; e). Providing enrichment/acceleration (remedial teaching) programmes according to the needs of students; f) Carrying out class administration following the field of duty; g) Developing programmes and implementing guidance practices for all students (Goldstein, 2017; Giangreco & Doyle, 2007).

Special assistant teachers then support regular teachers in providing special education services and compensatory interventions according to the needs of students with special needs in inclusive schools. The main duties of special assistant teachers include the following: a) Building a system of coordination and collaboration between education personnel and the community; b) Building a network between educational and health institutions; c) Developing academic and non-academic assessment instruments with class and subject teachers; d) Developing individual learning programmes for students with disabilities with classroom and subject teachers; e) Developing compensatory service programmes for students with special needs; f) Carrying out mentoring and academic learning for disabled student participants with class teachers or subject teachers; g)

Providing special service assistance for students with disabilities who experience obstacles in participating in learning activities in general classes, in the form of remedial or enrichment; h) Carrying out special learning in the resource room for students with disabilities who are in need; i). Implementing compensatory services according to the needs of students with disabilities; j) Providing continuous guidance and making special notes to students with disabilities during learning activities, which can be understood if teachers change; k) Carrying out case conferences (case surgery) with experts, school principals, teachers, parents and related parties (Pradipta et al., 2020; Moran & Abbott, 2002).

The learning system, teaching, curriculum, facilities, infrastructure and assessment system in inclusive schools will accommodate students with disabilities so that they can adapt and receive the best possible education (Dewi & Damastuti, 2022; Sholawati, 2019).

Research Questions

This study examines the collaboration between classroom teachers and special assistant teachers to improve the quality of learning in inclusive schools. This objective raises two questions. First, what is the form of involvement of classroom teachers and special assistant teachers in implementing learning for students with disabilities in inclusive schools? The answer to this question is clearly explained by examining the efforts of teacher involvement in inclusive schools based on indicators that affect the quality of learning. Second, what are the opportunities for implementing Universal Design for Learning in inclusive schools? Furthermore, this study will provide data that describes the readiness of teachers' attitudes in developing Universal Design for Learning to improve the quality of learning for students with disabilities.

Theoretical Framework

The implementation of inclusive education involves students with disabilities who have a variety of characteristics. Therefore, to enhance the quality of learning, various supporting aspects must be met, including accessible facilities and infrastructure (Irvan & Jauhari, 2018; Wahyudi & Kristiawati, 2016), the competence of human resources (La Rotta et al., 2020) and the responsibility of the parties (Darawong & Sandmaung, 2019). The following chart (Fig. 1) comprehensively illustrates what is needed.
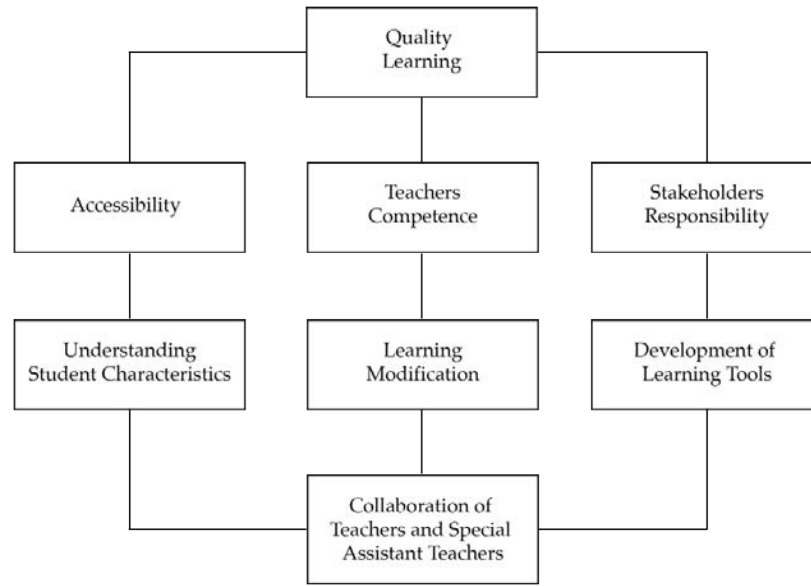
Figure 1: Flowchart for quality learning

The flowchart above can explain how realising quality learning in inclusive schools, requires a complex network of role-players and activities. The three listed segments for each are part of the Index for Inclusion elaboration (Booth et al., 2002). Provision of accessible supporting facilities and infrastructure, must align with the policies of the policymakers and, of course, be related to the size of the budget that can be allocated. However, other aspects are also important to pay attention to, namely the competence of teachers and the responsibility of related parties. This research examines teachers' competence in designing, implementing, and evaluating learning. In general, every teacher has these competencies. However, in Indonesia, only special education teachers have specific learning competencies to support students with disabilities. This condition certainly has implications for the context of learning in inclusive schools, where several teachers have different educational backgrounds. The assumption is that learning involving students with disabilities requires active collaboration between classroom teachers and special assistant teachers. Therefore, there is a need for an empirical study to see whether this collaboration is taking place and resulting in quality learning.

Methods

Research Methodology

This study used a mixed explanatory sequential design. Quantitative research instruments were used to collect data on teacher involvement in realising quality learning in inclusive schools. Six indicators were part of the primary data: assessment, lesson planning, good classroom management, learning materials and media development, implementation of accessible learning, and evaluation of learning. Qualitative data was collected through focus group interviews.

Population and Sample

The study population comprised 100 class teachers, subject teachers and special assistant teachers in inclusive schools. The subjects involved in this study were teachers in inclusive schools selected randomly in East Java Province, Indonesia. The subjects consisted of 29 class teachers, 48 subject teachers and 23 special assistant teachers. Class teacher respondents were teachers who worked in elementary schools, the subject teachers worked in junior and senior high schools and the special assistant teachers worked with students with disabilities at all-inclusive schools—the location of this research was East Java Province, Indonesia.

Instruments

The tool used to collect data was a questionnaire adapted from the UWES (Utrecht et al.) measurement instrument (Carmona et al., 2019) and the HEdPERF Scale (Abdullah, 2006). The instrument included six aspects: academic, non-academic, reputation, access, programme issues and understanding. However, this study was limited to the academic aspect of learning management. Furthermore, the academic aspect was broken down into six components: Assessment, Learning Planning, Classroom Model, Material Development, Accessible Learning, and Evaluation. This instrument was tested for validity and reliability using the Rasch model to obtain more detailed information at the item and person level. The test results show that the Raw Variance Explained value was > 20%, and the Raw Variance Unexplained was < 15% (see Table 1). Furthermore, testing was also carried out using the one-factor and three-factor CFA models (see Table 2). From all of these measurements, the instruments used proved valid and had only one "confusing" question item, namely on the aspect of the class model, which was accordingly corrected.

Table 1: Dimensionality and Invariance in the Test of Dimensionality with Rasch

Raw Variance Explained		Raw Unexplained Variance	
By measure	53,4%	In 1st contrast	9,6%
By person	29,1%	In 2nd contrast	7,3%
By items	24,3%	In 3rd contrast	6,9%
		In 4th contrast	6,2%
		In 5th contrast	5,2%

Table 2: CFA Model Testing

Model	λ^2(df)	RMSEA	CFI	NFI	GFI
Unidimension (1 Factor)	28,58 (18)	0,049	0,99	0,99	0,97
Multidimensions (3 Factor)	2296,23 (24)	0,10	0,96	0,96	0,95

λ^2 = chi-square, df = degrees of freedom, RMSEA = Root mean square error of approximation, CFI = Comparative fit index, NFI = Normed fit index, GFI = Goodness of fit index

Data Collection and Analysis

A survey method was used initially. A survey is a method of collecting primary data by giving questions to individual respondents and can be used to collect information from a representative group of a population. To enrich the data, interviews were also conducted with selected class teachers and special assistant teachers; the interview was a process of communication or interaction to collect

information utilising questions and answers between researchers and informants or research subjects. Data was analysed as per the objectives that underpinned the study.

Ethical Clearance

Ethical clearance is an instrument to measure the ethical acceptance of a series of research processes. Clearance of research ethics is a reference for researchers to uphold the values of integrity, honesty and fairness in conducting research. In addition, it protects researchers from claims related to research ethics. In this research, we provide Respect for persons and Beneficence for teachers.

Furthermore, the qualitative research phase was conducted by interviewing the respondents. This stage involved nine respondents selected by the purposive sampling technique. The details of respondents consisted of three classroom teachers, three subject teachers and three special assistant teachers. This data was used to descriptively confirm their involvement in realising quality learning in inclusive schools. Quantitative and qualitative data results were interpreted to produce recommendations.
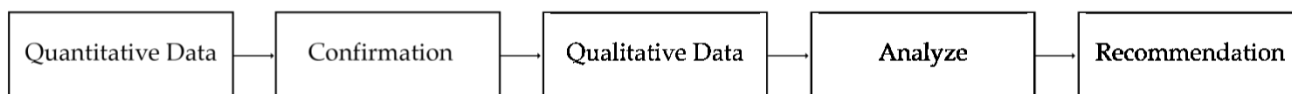
| Quantitative Data | → | Confirmation | → | Qualitative Data | → | Analyze | → | Recommendation |

Figure 2: Flowchart of research stages

Findings

The teacher performance analysed in this study was a collaborative effort between classroom teachers with special assistant teachers or subject teachers with special assistant teachers. Quantitative data indicate whether teachers make cooperative efforts or not (see Table 1). Assessment is an essential initial step in determining the students' abilities. At the assessment stage, the teacher takes a vital role in measuring the abilities, both academic and non-academic. Based on the data, the average teacher involvement in compiling the assessment document was low ($\sum$ 37%). Special assistant teachers had the highest percentage in this aspect (87%), compared to classroom teachers (31%) and subject teachers (16.6%). The confirmation results indicate that special assistant teachers conducted assessment activities by analysing supporting documents (Medical History, Result Test Reports, and Study Reports). Classroom teachers or subject teachers were less involved because they assumed that the assistant teacher had special competence in conducting assessments of students with disabilities.

The following stage is lesson planning, in which all teachers must develop a learning programme for a certain period. However, this section elucidates the resemblance of scores identical to the previous one (X 31%, Y 16.6%, Z 87%, 37%). In this case, class teachers or subject teachers mainly stated that they informed the learning themes that would be taken during one semester. Then, the special assistant teacher is tasked with compiling lesson plans based on the previous assessment results. Reflecting on the contribution of the special assistant teachers, they modified the lesson plan based on the characteristics of each student, using a Universal Learning Design approach.

The next stage is classroom management, which must be informed by the conditions of students with disabilities. This section showed the need for more cooperation in developing learning designs in the

classroom. This is evidenced by the percentage of classroom teachers involved (17%), subject teachers (10.4%) and special assistant teachers (35%). Based on the interview data, seven out of nine respondents stated that the school had determined the management of classes attended by students with disabilities. The regular class system is the most widely implemented classroom management model at the junior- and senior-high-school levels. Meanwhile, the elementary school level mainly uses the pull-out model. This suggests that the classroom management model is too perplexing to implement for elementary students due to its complicated system, and, psychologically, elementary school students are learning for fun, mental and social development and emotional management, instead of cognitive development.

The low involvement of teachers in the first, second, and third stages had a strong connection with the development of learning materials and learning media. Special assistant teachers dominated the role of compiling material according to students' abilities. Moreover, special assistant teachers were also tasked with preparing learning media according to their students' characteristics (87%). Special assistant teachers confirmed that they coordinated with the class teacher or subject teacher to determine the content and weight of the material to be given to students with disabilities. Class teachers (86%) and subject teachers (41.6%) stated that they helped to provide learning resources as a basis for developing materials for special assistant teachers.

At the learning stage, classroom teachers or subject teachers showed intimate engagement data (X 86%, Y 89.6%). This was not the case with special assistant teachers, which indicates that implementing learning was not accessible (special assistant teacher involvement was 13%). This was imposed by classroom management provisions that were not supported by non-physical accessibility, such as books for unsighted students or identical learning methods to the teacher center. In other conditions, special assistant teachers find it difficult to ensure a friendly environment for students with autism or attention deficit hyperactivity disorder (ADHD). This is generally caused by applying the regular class model, which is considered less relevant to their conditions.

Meanwhile, the three teachers needed to collaborate better in determining techniques and carrying out learning evaluations at the evaluation stage. It was found that, overall, they had 42% engagement (X 69%, Y 31%, Z 30.4%). Their evaluation was more oriented towards learning achievement based on the confirmation results. If learning achievement is low, then they determine remedial teaching as a form of follow-up that must be done.

Table 3: Quantitative Data

Respondent	A	B	C	D	E	F	Average
X n = 29	Yes 9 (31%) No 20 (69%)	Yes 9 (31%) No 20 (69%)	Yes 5 (17%) No 24 (83%)	Yes 25 (86%) No 4 (14%)	Yes 25 (86%) No 4 (14%)	Yes 20 (69%) No 9 (31%)	Yes 15.5 (53.4%) No 13.5 (46.6%)
Y n = 48	Yes 8 (16.6%) No 40 (83.4%)	Yes 8 (16.6%) No 40 (83.4%)	Yes 5 (10.4%) No 43 (89.6%)	Yes 20 (41.6%) No 28 (58.4%)	Yes 43 (89.6%) No 5 (10.4%)	Yes 15 (31%) No 33 (69%)	Yes 16.5 (34%) No 31.5 (66%)
Z n = 23	Yes 20 (87%) No 3 (13%)	Yes 20 (87%) No 3 (13%)	Yes 8 (35%) No 15 (65%)	Yes 20 (87%) No 3 (13%)	Yes 3 (13%) No 20 (87%)	Yes 7 (30.4%) No 16 (69.6%)	Yes 13 (56.5) No 10 (44.5)
Total n = 100	Yes 37 (37%) No 63 (63%)	Yes 37 (37%) No 63 (63%)	Yes 18 (18%) No 82 (82%)	Yes 65 (65%) No 35 (35%)	Yes 71 (71%) No 29 (29%)	Yes 42 (42%) No 58 (58%)	Yes 45 (45%) No 55 (55%)

Note:

X: Class Teacher; Y: Subject Teacher; Z: GPK

A: Carry out the assessment stages; B: Develop lesson plans; C: Determine the class management model; D: Developing learning materials and media; E: Implement accessible learning; F: Carry out a comprehensive evaluation

Discussion

Learning support for students with disabilities should be relevant to their abilities and needs. Therefore, development must be carried out procedurally and measurably based on a line of skills and the characteristics of disability. Assessment is the initial stage that has a potential role in developing a learning plan (Unianu, 2012). The scope of assessment in inclusive schools is not just to identify the category of disability in students, it also includes academic and non-academic abilities that can be developed in a school environment. Therefore, special assistant teachers and class teachers or subject teachers must collaborate as much as possible to measure the base-line skills of students in each subject and other service needs (Poon-McBrayer & Wong, 2013; Robinson, 2017; Bines & Lei, 2011). The gap in the field reveals that classroom teachers or subject teachers need to engage more at the academic assessment stage.

The assessment results become an essential foundation for teachers to determine the learning programme they will develop for students with disabilities. Based on the justification of the level of academic ability of students with disabilities, classroom teachers or subject teachers can provide input

on material points that must be contained in the learning planning document (Irvan et al., 2021). In Indonesia, the learning plans are prepared in a document called a Learning Implementation Plan (LIP). The LIP is standardised and applies to all students in the same class. However, teachers must also create a separate document for students with disabilities. This document is specific to each individual and adapted to students' characteristics and fundamental abilities to follow specific lessons.

Before moving on to learning activities, classroom management should also be planned. In Indonesia, two classroom management models are most widely applied in inclusive schools: regular and pull-out. The standard class model allows students with disabilities to study with others in the same class. At the same time, the pull-out model provides opportunities for students with disabilities to learn in different learning settings. This model is based on specific reasons, such as the characteristics of students with disabilities or the need for learning materials more specific to their conditions (Jauhari et al., 2022; Florian & Black-Hawkins, 2011). However, based on data records, it is evident that teachers have a very minimal role in this regard. They are generally put forward because the school has standardly determined the classroom management model that should be implemented (Florian & Beaton, 2018).

Each teacher is tasked with compiling the material standardised for each class. However, in an inclusive school setting, teachers must also collect materials modified to suit the baseline abilities of students with disabilities (Florian & Linklater, 2010). Similarly, when generating learning media, teachers must produce learning media based on their qualities while adhering to accessibility rules. For example, we cannot give printed textbooks to students with visual impairments — we need Braille versions or text-to-speech technology. Similarly, children with autism and other challenges require specialised learning resources and media, which may include the technological ability to change image size, font size, type and colour selection. This becomes part of the accessibility of learning implementation. From the first to the fourth level, teaching and learning is an implementation activity. Education performance must be truly accessible. This is critical to ensuring the knowledge transfer process runs properly. Conditioning the classroom environment and forms of learning assistance also have a role to play in achieving this goal (Cretu & Morandau, 2020). Collaboration between teachers is more than providing learning resources for special assistant teachers (Holmqvist & Lelinge, 2021; Lancaster & Bain, 2007). In addition, all teachers must form a work team to compile teaching materials and develop media. The most basic reason is that the suitability of the material and the principle of accessibility must be maintained.

Evaluation is the final stage in the learning cycle, which aims to measure learning achievement. The form of evaluation must be based on the characteristics of the disability. This allows the measurements to be unbiased, otherwise resulting in invalid data. Evaluation is not only limited to measuring achievement but also must analyse every aspect of learning that has been applied. Conceptually, the evaluation scope can help teachers prepare the necessary follow-up for future education. However, the data analysis results revealed that the programme evaluation was rarely carried out. Teachers are more oriented to student achievement rather than evaluation of their own practice (Dharma, 2020).

The data analysis indicates the relatively low involvement of all teachers in developing quality learning. Contextually, classroom teachers or subject teachers have superior competence in the subject

matter at certain school levels (Kugelmass, 2001). The advantages of these competencies should be exploited in developing quality learning. Class teachers or subject teachers can be collaborators who determine the contents of the learning materials using the baseline of students with disabilities. They also become essential to assessing the idea of developing relevant learning media. Meanwhile, special assistant teachers have a vital role in understanding the conditions and needs of students with disabilities (Savolainen et al., 2012). In addition to assisting in the learning process, special assistant teachers also have a role as an informant about the needs and characteristics of students with disabilities in various aspects related to learning.

Developing learning in inclusive schools must be universal. This is aimed at increasing access for students with disabilities and as a step in transforming the learning process (McGhie-Richmond & Sung, 2013). UDL becomes a curriculum recommendation that is considered relevant to this case. Many previous studies have indicated that UDL advantages all learners, not just those with disabilities (Oliviera et al., 2019; Spencer, 2011). As a reinforcement, UDL not only includes differentiated material for each student but is also concerned with accessibility of learning implementation, instructional characteristics, and the use of assistive technology (Rose et al., 2005). The collaboration between subject teachers and special assistant teachers, following UDL principles, is likely to be equally vital as learning provision moves into blended or online mode and team will likely need to be extended to include online learning technology specialists.

Recommendations

a. Universities and special schools can become resource centres for inclusive schools, especially in developing instructional design within the framework of UDL; and

b. Collaboration between subject teachers and special education-trained assistant teachers should become a norm for inclusive education provision in inclusive day-schools, while the design and implementation team will likely need to be expanded for blended or online provision.

Conclusion

The results of this study describe the condition of teachers' collaborative performance in inclusive schools in developing quality learning. Based on standardised procedures (referring to the standard of implementing inclusive education in Indonesia), collaboration between classroom teachers and assistant teachers must be further developed and supported. However, the involvement and collaborative efforts between teachers is generally low. So, in this case, knowledge is more of a differentiation character, determining who does what, while the universal learning rules still have not been implemented and evaluation of the effectiveness of the learning design has often not been undertaken. This condition may influence the quality of learning for students with disabilities. This condition can be a reference point for various learning designs that involve students with disabilities, in both online and face-to-face learning. This is related to the universal design for learning principle, where every learning design decision must be universal to support the ease and equality of access to learning for students with disabilities. It is hoped that future research will examine teachers' attitudes and increase their efforts in developing quality learning for students with disabilities. Moreover, the principles of implementing UDL need to be integrated into the inclusive education curriculum in Indonesia.

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