Development of Functional Academic Assessment Instruments for Students with Intellectual Disabilities Transition Program

Een Ratnengsih, Riksma Nurahmi Rinalti Akhlan, Astri Nursifa, Lulu Fikriyah Shalihat, Fauzia Putri Awalya

Universitas Pendidikan Indonesia, Bandung, Indonesia
E-mail: ratnengsih_een@upi.edu

Abstract: The phase transition from formal education to living in society for students with intellectual disabilities still leaves many problems. At the high school level, academic learning should support the skills given to students with intellectual disabilities during the transition period. Assessment is an important part that a teacher must carry out before preparing a lesson plan. A qualified assessment instrument will help teachers in the process of finding student learning needs. This study aims to develop a functional academic assessment instrument that is valid and practical to support data collection for learning purposes. The development model used is the ADDIE model with the Analyze, Design, Develop, Implement, Evaluate stages. The results showed that the assessment instruments in the functional academic field consisted of the aspects of reading, writing, and arithmetic accompanied by guidelines for their use. The results of expert validation and product practicality tests carried out on the developed instruments are categorized as very valid, practical, and effective. Therefore, the instrument can be used as a guide in assessing learning needs in transition programs for students with intellectual disabilities.

Keywords: Assessment, functional academic, intellectual disability

INTRODUCTION

Organizing education for students with intellectual disabilities is basically to make them independent. Education formally passed from Pre-School, Elementary School, Junior High to High School levels is given the flexibility to be taken in which service settings, whether segregation, integration, or inclusion (Waldron & Mcleskey, 2010; Weiss, Markowetz, & Kiel, 2018). Historically, educational services in special schools (segregation) have a long experience in providing educational services for children with special needs, including children with intellectual disabilities. The implementation of educational services in a segregated setting was marked by establishing the first Special School in 1902 for children with visual impairments, followed by a school for students with intellectual disabilities in 1927, better known as mental retardation (Rahardja, 2016).

Management of education services in Special Schools is carried out at all levels, from Special Elementary Schools, Special Junior High Schools to Special High Schools level. Some schools even organize education starting from Pre-School, namely Special Kindergarten to Post-School Programs. If we look at the management of each level of education in Special schools, then the special high school level is a stage that contributes quite a lot in determining their future after graduation. The transition from the phase they went through at school to the community's life after they graduated was a big enough challenge. Therefore, the curriculum designed for children with intellectual disabilities emphasizes the magnitude of skill competence compared to academics. The policy for the composition of the curriculum structure in more detail is contained in the Regulation of the Director-General of Primary and Secondary Education Number: 10/D/Kr/2017 Date: April 4, 2017, concerning Curriculum Structure, Core Competencies-Basic Competencies, and Guidelines for the Implementation of the 2013 Curriculum for Special Education.

The implementation of the transition program in some literature is carried out after the child has graduated from high school, which is packaged in a program within a specific period. Students in post-school education carry out this program to prepare them for real-life society. Therefore, preparation or handling has to be carried out as early as possible (in the context of time) implies that the preparation of the transition program should be carried out since the child is studying in high school because there is a continuous relationship between the transition program and the learning program at this level (Oertle & Bragg, 2014).

Schools must provide and design transition programs for children with intellectual disabilities thoughtfully. The implementation of the transition program, in fact, requires many parties to be involved. Transition programs demand coordinated planning, collaboration, and decision-making among school staff, families, and community institutional networks (Flexer, Baer, Luft, & Simmons, 2012). Cooperation with the family, in this case, the parents, is needed to determine the field to be chosen, and the continuity of learning carried out at school can be done at home.
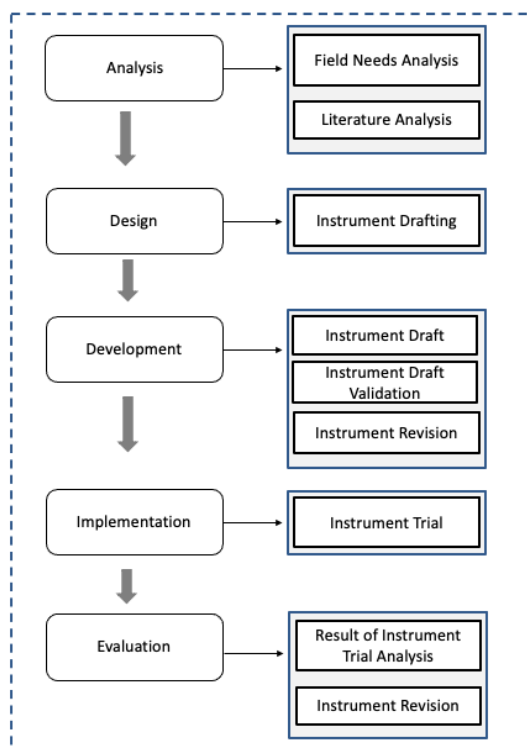
Figure 1. Research Stage

Other parties that are no less important are the industrial and business worlds with large, medium, and even small-scale home industries. The involvement of industry and business is for the benefit of the internship program as part of learning, long-term projections after they graduate, namely how job opportunities may be accessible to children with intellectual disabilities (Sarimanah, 2020).

Teachers have an essential part in the educational services provided in schools, including in the development of transition programs starting from the time the child is still in high school (Park, 2008). Teachers need to develop learning tools starting from assessment, planning, implementation, reflection to evaluation. The first step taken by a teacher before preparing a lesson plan is to carry out an assessment process. It is an important part that must be done by a teacher where children with intellectual disabilities must go through the assessment process so that an overview of their abilities, barriers, and learning needs will be obtained (Tang, 2010). If the assessment process is not carried out, the learning that is conducted does not have a basis for achieving the expected learning objectives. Often failures in learning in transition programs are caused by the absence of data on the results of the assessments that have been carried out. Therefore, assessment has a significant and strategic role in determining the success of the transition program learning (Carter, Brock, & Trainor, 2014). The assessment implemented to determine learning needs is usually known as an assessment for learning. This assessment is a process of collecting information comprehensively related to what the child has mastered and what the child has not mastered to produce learning needs that can be used to make learning decisions.

Based on the results of a preliminary study conducted at Special School SP and SS, namely schools for children with disabilities in Bandung city, it is known that the two schools have transition programs in the form of developing vocational skills with several skill areas. The implementation of this vacation program is held separately from the learning program in the academic field. So that what is achieved by children in the academic field does not contribute functionally to the vocational skills learned by students. Children need to master functional and specific academic skills in implementing one of the transition programs, namely vocational skills. Therefore, the assessment process implemented by the teacher includes two scopes, namely the scope of the functional academic and vocational skills areas, which include reading, writing, and arithmetic. The implementation of assessment activities carried out by teachers in this transition program experienced obstacles because there were no tools or instruments that teachers could use as a guide to carry out the process of collecting data about children. Based on these phenomena, a study that aims to develop a valid and practical functional academic assessment instrument to support data collection for learning purposes is important to be carried out and presented in this paper.

METHOD

The method used in this study is the research and development (R&D) method. According to Borg and Gall, Educational R&D is the process used to develop and validate educational products (Borg and Gall, 2007). This research aims to develop a set of functional academic instruments for students with intellectual disabilities for the transition program. Therefore, the approach used is the ADDIE (Analysis, Design, Develop, Implementation, and Evaluation) approach. The stages in which the ADDIE model is commonly used in designing the learning system developed by Dick and Carey (1996). In achieving the objectives of this study, which is to develop a functional academic assessment instrument, this model is still quite relevant to use. The stages carried out in this study are visualized in Figure 1.

The implementation of this Research and Development goes through several stages. The stage begins with analysis conducting a preliminary study to find teacher needs related to the content of assessment tools and literature studies. A preliminary study was conducted on two special school teachers who teach

at the special high school level in 2 special schools in Bandung. Data were collected using interview techniques and documentation studies. At the Design stage, it is done by making a draft of a functional academic assessment instrument that refers to field needs data. The next stage of development is carried out by conducting a validation process from the draft instrument design prepared. Validation was carried out by three people consisting of child experts with intellectual disabilities, assessment experts, and practitioners (teachers). The results of the validation process are revised on the draft assessment instrument. Finally, the Implementation phase is implemented through a trial of functional academic instruments that have gone through a revision process. The trial of the use of the assessment instrument was carried out on five teachers. The results of the implementation carried out the Evaluation process, evaluation data collection techniques using questionnaires. Processing of data from validation and trial results using descriptive statistics.

FINDING AND DISCUSSION

Finding

The results of this study refer to the stages carried out with a specific purpose. The following are the results of research and discussion of each stage of the study:

Analysis

The initial stages of this study resulted in the need for functional academic assessment instruments. Preliminary data explore the form of transition programs at the research site, namely Special School SP and Special School SS. The results of extracting data from the two schools illustrate a transition program carried out in schools. The two data sources state that the transition program in their school provides vocational, self-development, and academic programs. The percentage of 70% of the skills portion is interpreted as providing vocational programs, and the rest is academics and self-development. However, from the two sources explored, one data source, namely Teacher F at one school, stated that the provision of vocational skills to male and female students was given many choices of vocational skills, namely catering, straightforward fashion, and Hand Craft, although in its implementation due to distance learning conditions there are adjustments.

Meanwhile, other data sources, the teacher named S at Special School SP, stated that the vocational skills program was handed over to the respective class teachers. Teacher S takes vocational skills by analyzing product opportunities that are needed and have a high selling value. Teacher S only took one field, namely

the manufacture of masks. The teacher explained that this product was needed publicly, especially during the pandemic. The manufacturing process, packaging, and marketing were possible for children with intellectual disabilities, especially those in the mild category. Vocational skills area which Teacher F works also carry out vocational skills learning to make masks, only not until the children produce them in large quantities and are widely marketed.

The selection of vocational skills is basically according to Government Regulation No.22 No 2006 that the determination of Competency Standards and Basic Competencies is submitted to the respective educational units ("Peraturan Menteri Pendidikan Nasional Nomor 22 Tahun 2006 tentang Standar Isi Untuk Satuan Pendidikan Dasar Dan Menengah," 2006). Schools have complete responsibility for designing vocational programs that are suitable for children with intellectual disabilities to open up opportunities for various programs to take place in each school (Mufiddah, Efendi, & Sulthoni, 2019). Some of the most common vocational skills for disabilities that schools generally implement are craft skills, culinary arts, fashion, agriculture, services, sports, computers, art, and photography (Ratnengsih, 2017).

Regarding the implementation of assessments for students with intellectual disabilities for transition programs, especially those related to vocational skills and the academic field, Teacher SR and teacher F often observe the abilities and barriers of students who indirectly assume that it is an assessment process. However, teacher S specifically stated that the assessment process was not carried out using written guidelines and reporting. Assessment instruments used explicitly for functional vocational and academic programs do not yet exist, and the S teacher considers it important and needed, especially for reference documentation. Meanwhile, Teacher F stated that the instruments used were limited to those with guidance from the directorate for certain vocational skill areas. However, teacher F stated that the directorate's guide did not include functional academics directly related to the field of vocational skills taught to children. For example, in the same field of vocational skills, namely the skill of making masks, there are no instruments used in the assessment process.

Assessments and learning carried out on students with disabilities at the Special High School level in the vocational and academic fields are often separate. The focus of the academic field refers to specific themes that have been set in the curriculum so that academic content in the areas of reading, writing, and counting will also follow the existing themes. This condition can allow children to experience obstacles in the field of skills because they do not master specific academic fields for the benefit of vocational skills.

Table 1. Score Percentage Interpretation

Percentage	Criteria
80,1%-100%	Very High
60,1%-80%	High
40,1%-60%	Moderate
20,1%-40%	Low
00,0%-20%	Very Low

Table 2 Result of Validation

No.	Assessment Aspect	Average Percentage	Criteria
1.	Aspect of Readability	73,33%	High
2.	Construction	86, 67%	Very High
3.	Item suitability with indicators	93,33%	Very High

In general, the functional academic field is the one that is used more in everyday life. The limitations of the assessment instrument guide have equal opportunities for limited objectives and learning materials in the functional academic field. Because basically, the assessment process departs from aspects that must be learned or mastered by students. Teachers need the development of functional academic teaching materials because the sources of available academic books are limited. Teaching materials must be arranged according to students' abilities, arranged from easy to complex, and applied in everyday life (Normawat, Ishart, Mumpurniarti, & Maslahah, 2021). This condition causes teachers to tend to have difficulty in the assessment process because there is no assessment instrument as a guide.

Based on the analysis stages, it is known that: (a) Academic learning becomes a separate part from the field of vocational skills, so this causes what is learned in the academic field does not support the needs in the vocational field, (b) teachers need instruments that can be used as a guide that can be revealing available academic data that supports the vocational field, (c) The field of vocational skills in making masks is equally studied by students with intellectual disabilities in both special schools, so they have a priority need to make functional academic instruments.

Design

Referring to the needs explored in the previous stage, functional academic instruments were compiled, which refer to a more specific field of vocational skills, namely making masks. The structure of the functional academic assessment instrument design as the initial draft consists of:

The identity of the book. This section contains the title of the functional academic assessment instrument and the name of the author

Foreword. The contents of this section contain acknowledgments, benefits, and the preparation process, and a statement of openness to suggestions and criticisms of the instruments that have been prepared.

Table of contents. Each section in this document is listed along with the page number where it begins

Introduction. This section contains the background on the preparation of functional academic instruments and their relation to the field of vocational skills,

Purpose. This section contains a statement to be achieved from the purpose of preparing this assessment instrument.

Target. Contains the parties who need to be addressed related to the preparation of the instrument and its guidelines

The procedure of usage. Contains the steps used in using or applying this instrument.

Scope. This section contains the limitations of aspects related to and revealed in the assessment, including vocational skills (making masks), reading, mathematics, and writing.

Data Collection Techniques. It contains how assessors reveal data on each aspect that they want to explore.

Instrument Grid. This section contains a matrix format that contains the primary framework used for the preparation of items.

Instrument Items. Items to reveal data based on predetermined indicators include vocational skills (making the masks), reading, mathematics, and writing.

Assessment Criteria.

Analysis and Assessment Results, The functional academic instrument drafts are compiled in soft files and hard files intended for special school teachers at the high school level.

Development, The technical development stage is carried out by validating the initial draft of the assessment instrument that has been designed. Validation is done by assessing the aspects of readability, construction, and suitability of items with indicators. The results of the validation were also carried out based on expert input which was presented descriptively. The results of the validation were processed using descriptive statistics referring to the criteria according to Arikunto (1997) in table 1.

The results of the validation carried out by experts and practitioners on the aspects of readability, construction, and item suitability with the following indicators show in table 2.

Table 3. Interpretation of Readability Percentage Score

Percentage	Criteria
80,1%-100%	Very High
60,1%-80%	High
40,1%-60%	Moderate
20,1%-40%	Low
00,0%-20%	Very Low

Table 4. Interpreted percentage score of Ease-of-Use Aspect

Percentage	Criteria
80,1%-100%	Very Easy
60,1%-80%	Easy
40,1%-60%	Enough
20,1%-40%	Difficult
00,0%-20%	Very Difficult

Table 5 Result of Trial

No.	Assessment Aspect	Average Percentage	Criteria
1.	Aspect of Read-ability	96%	Very High
2.	The Ease of Use	80%	Easy

Some of the inputs given by the validator are that the cover design should be designed attractively, some of the writing has typos, the writing of the scope can be designed like a concept map.

Based on the results of the input from the validation process, the draft instrument design was improved in several aspects, including (a) changing the cover design to be more attractive with a combination of colors and image illustrations, (b) Correcting typing errors, (c) Making a concept map visualization.

Implementation

The functional academic assessment instrument that has been revised is then tested on the teacher. The purpose of this trial is to find out how much the functioning of this assessment instrument can assist teachers in exploring the abilities, barriers, and needs of students in the functional academic field in the aspect of vocational skills in making the masks. The implementation process was carried out on five people.

The teacher is given an assessment instrument that has included one part and a guide for its use. The teacher learns and practices the assessment process using the instrument. The granting of time waivers is carried out in order to be able to adjust the implementation to their schedule for learning.

Implementation of assessment activities to find learning needs for students with intellectual disabilities for teachers with special education backgrounds should have competencies that have been learned and mastered. However, the practice often encounters various obstacles so that the assessment process is not carried out. Many factors cause assessments not to be carried out (for example, focus on formative assessment, incomplete information obtained between knowledge and practice regarding assessment, and limited support in conducting assessments). It is not surprising that the assessment process to explore student learning needs is not surprising considered difficult for students. Teachers to be understood and integrated in the practice of learning in the classroom. So that, the views and practices of the assessment process appear as a formality in the sense of just carrying out without taking advantage of the results. However, there is also a condition of enthusiastic assessment practice because it is for the sake of learning in their class so that the utilization of the results of the assessment carried out becomes an important part for them (DeLuca, Chapman-Chin, & Klinger, 2019; Tang, 2010)

Evaluation

This stage is an integral part of the previous stage, namely implementation. The functional academic assessment instruments that have been tested are evaluated to determine the level of readability and the level of ease of use of the device. The results of this evaluation are used as a reference for improvements to the instruments tested to be used as the final draft. Evaluation data were collected using a questionnaire using a rating scale of 1-5. The questionnaire is also equipped with an open description column to provide descriptive suggestions or input. The results of the evaluation data collection were processed using descriptive statistics referring to the criteria according to Arikunto (1997) by modifying the criteria according to the importance of the aspects assessed in table 3 for the level of readability, table 4 for the level of ease of use of the device.

The results of the trial at the implementation stage were carried out to measure the level of instrument readability and the level of ease of use as follows in table 5.

The results of the trial show that the readability of the content of the functional academic assessment instrument is 96%, meaning that it is in the very high

category. At the same time, the level of ease of use is 80%, which is in the easy category. In addition, the teacher also provides several inputs, including: (a) it is deemed necessary to have an example of the display of the analysis report on the results of the assessment, (b) the teacher also asks to design several vocational skill areas to know their functional academic aspects, (c) the teacher asks to design a list of functional academic aspects based on their fields of reading, writing, and arithmetic. Some inputs from the results of the implementation evaluation were used as material to revise the functional academic assessment instrument, namely by adding an example of an analysis report on the assessment results. While, other inputs are used as recommendations for further research.

Based on the results of the trial evaluation, it was obtained data that the existence of a guide for conducting assessments was very important so that teachers had an overview of what aspects should be disclosed and how to conduct the analysis. The teacher's need for guidance, including instruments for conducting assessments following the choice of a more varied choice of skill areas, can be captured from the input given based on evaluating the implementation results. Assessment activities for students with disabilities during the transition period are required in vocational/choice skills, including academics. The objectives include (a) Placement and eligibility: to determine requirements in the educational and work environment, determine students' proficiency level, and match student preferences and abilities with the appropriate program choice. (b) Planning: identify abilities, interests, capabilities, strengths, needs, potential, behaviors, and preferences, try out different tasks or activities and to determine how preferences match abilities for program choices, develop comprehensive descriptions of transition assessment data to help students, their families, and team members identify concrete ways to assist students in achieving their goals. (c) Instruction and intervention: to apply techniques or strategies that will help students explore performance requirements in transitional environments and recommend adaptive techniques and/or accommodation strategies that will lead to improved performance in transitional environments (Flexer et al., 2012).

The data extraction regarding functional academic learning needs that support vocational skills in specific fields accurately will help teachers direct the students to certain vocational fields that have not been taught and have the opportunity to be mastered by children for projecting jobs after graduation, or vice versa when the learning process in specific vocational fields has been carried out, the teacher it will be much easier to target functional academic aspects that have not been mastered by children so that they can be used as the main program or simultaneously when given vocational skills learning. In addition, the results of functional academic assessments that are carried out open up opportunities for the development of substitute or supporting devices in the form of technology or assistive technology to make it easier for children to apply academic abilities in the field of vocational skills. The fulfillment of the functional academic learning needs of children with intellectual disabilities opens up opportunities to improve the quality of life of children so that children can live independently in society.

CONCLUSION

Functional academic assessments are basically carried out to determine what has been mastered and what has not been mastered so that learning needs arise that support the mastery of skills needed by children with disabilities during the transition period, one of which is vocational skills. Problems that arise in the field related to the functional academic assessment process are academic learning becomes a separate part from the field of vocational skills, the content studied in the academic field does not support the needs in the vocational field, teachers need instruments that can be used as guides that can reveal helpful academic data that support the vocational field, including the skills to make masks. Preparation of functional academic assessment instruments for students with intellectual disabilities containing items to reveal reading, math, and writing skills supports vocational skills (making the masks). The instrument is packaged in a manual that explains how to use it, including an example of an analysis report on the results of the assessment. This assessment manual has gone through validation and testing, which shows the results have a very high level of readability and are easy to use. The development of functional academic instruments that support vocational skills in other fields is an important part of future research.

REFERENCES

Arikunto, S. (1997). *Penilaian Program Pendidikan Edisi III*. Jakarta: Bina Aksara

Borg, W.R., & Gall, .M.D. (2007). *Educational Research: an Introduction (8th Edition)*. New Work: Longman Inc.

Dick, W., Carey, L. & Carey, J.O. (1996). *The Systematic Design of Instruction*. Florida

Carter, E. W., Brock, M. E., & Trainor, A. A. (2014). Transition Assessment and Planning for Youth With Severe Intellectual and Developmental Disabilities. *Journal of Special Education*, *47*(4), 245–255.

DeLuca, C., Chapman-Chin, A., & Klinger, D. A. (2019). Toward a Teacher Professional Learning Continuum in Assessment for Learning. *Educational Assessment*, *24*(4), 267–285.

Flexer, R., Baer, R., Luft, P., & Simmons, T. (2012). *Transition Planning for Secondary Students with Disabilities (4th Edition)*. *Faculty-Authored Books*. Retrieved from http://digitalcommons. kent.edu/facultybooks/17

Mufiddah, R. K., Efendi, M., & Sulthoni. (2019). Program Vokasional Siswa Tunagrahita di SMALB Malang (Studi multi situs di Sekolah Menengah Atas Luar Biasa Malang). *Jurnal Ortopedagogia*, *5*(November), 74–80.

Normawat, Y. I., Ishart, I., Mumpurniarti, M., & Maslahah, S. (2021). Development of Functional Academic Guidebook Based on Experiential Learning for Teacher Specialized in Teaching Children with Intellectual Disability. *International Journal of Educational Research Review*, 63–74.

Oertle, K. M., & Bragg, D. D. (2014). Transitioning Students With Disabilities: Community College Policies and Practices. *Journal of Disability Policy Studies*, *25*(1), 59–67.

Park, Y. (2008). Transition Services for High School Students with Disabilities : Perspectives of Special Education Teachers, *18*(3), 95–111.

Peraturan Menteri Pendidikan Nasional Nomor 22 Tahun 2006 tentang Standar Isi Untuk Satuan Pendidikan Dasar Dan Menengah. (2006), (april), 1–9.

Rahardja, D. (2016). Pendidikan Luar Biasa dalam Perspektif. *Jassi Anakku*, *9*, 76–88.

Ratnengsih, E. (2017). Implementasi Program Vokasional bagi Anak Tunagrahita. *Jassi Anakku Volume 18 Nomor 1, Juni*, *18*, 87–92.

Sarimanah, S. I. W. et all. (2020). MANAJEMEN PEMBELAJARAN PROGRAM VOKASIONAL BAGI ANAK TUNAGRAHITA DI SLB. *Nusantara Education*, *3*(April), 71–80.

Tang, S. Y. F. (2010). Teachers' professional knowledge construction in assessment for learning. *Teachers and Teaching: Theory and Practice*, *16*(6), 665–678.

Waldron, N. L., & Mcleskey, J. (2010). Inclusive school placements and surplus/deficit in performance for students with intellectual disabilities : Is there a connection ? Û, *1*, 29–42.

Weiss, S., Markowetz, R., & Kiel, E. (2018). How to teach students with moderate and severe intellectual disabilities in inclusive and special education settings: Teachers' perspectives on skills, knowledge, and attitudes. *European Educational Research Journal*, *17*(6), 837–856.