

## A Preliminary Study on Enabling Youth with Intellectual Disability Learn Livelihood Skills with Making Bags from Recycled Tetra Packs as Example

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### Abstract

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The study was conducted to see whether people with intellectual disabilities (IDs), belonging to age group classified by the American Association of People with Disabilities (AAPD) as youth with intellectual disabilities can acquire the necessary competencies and skills in making bags using recycled tetra packs as model for livelihood training. The ability to learn these skills may allow those with intellectual disabilities a livelihood that may sustain them financially and allow them to live independently within their community. The study was undertaken in 2 public schools in an urban setting (Metro Manila) in the Philippines with self-contained transition class for people with ID. Seventeen (17) selected participants aged 16-24 underwent training consisting of: (1) lecture and demo; (2) hands-on; (3) semi-independent performance; and (4) independent performance. Using four (4) modules and a combined quantitative and qualitative research design, the study determined work knowledge, skills, and behavior of the participants before and after the training. The results of this study show significant differences in these parameters. Thus, it is possible for youth with ID to learn skills that may help them provide for themselves and facilitate their inclusion in alternative livelihood programs in the absence of support groups and equal opportunities in employment in the Philippines.

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**Keywords:** Youth with Intellectual Disability (ID), People with Intellectual Disability (ID), Tetra packs, bag-making, recycling

### 1. Introduction

Normally, a child grows and develops to become an independent individual who is capable of taking care of him/herself. As the child grows, he/she acquires literacy skills, finds a stable job, earns, be more responsible for every decision that he/she makes, and lives productively in the community (McDonnell and Hardman, 2010). Unfortunately, this is not always the case for people with intellectual disability (ID).

People with IDs are classified as people with disabilities (PWDs) characterized as having reduced levels of intellectual capacity (Drew & Hardman, 2007). Since people with ID have difficulty in cognitive and/or psychomotor skills, the opportunities for a quality of life that allow them to live independently and interact with the community, are limited. Many are denied access to basic and other opportunities (Fojas, 2013), have difficulty communicating, learning, or adjusting to academic, vocational, adaptive behavior or social adjustment (Pierangelo & Giuliani, 2004) due to their “reduced ability to understand new concepts or complex information, and learn new skills or cope independently” (Gates, 2007). Consequently, many are unemployed despite training because employers are hesitant to hire them due to added cost in training them acquire social and other technical skills, and make them more productive members of their workforce (Beyer et al, 2010; Ju et al, 2013). Thus, people with ID require continuous support from their families and agencies to provide them sustenance even in adulthood.

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Realizing that the state has the responsibility to take care of its people including PWDs that constitute 1.57% (NSO, 2010) of the Philippine population, a law - the Magna Carta for Persons with Disabilities (PWDs) was passed. Section 5 of this law requires that the government reserves at least 5% of its casual, emergency and contractual positions to PWDs, and corporations with more than 100 employees are encouraged to do the same. The response of various NGOs and government agencies, for example, Department of Social Welfare and Development (National Vocational Rehabilitation Center, DSWD-NCR, 2014) were to create programs to help PWDs in the country. In effect, companies like UNILAB, a multinational drug company through their foundations sponsored projects that included "Project Inclusion". Many of these projects involved hiring PWDs through a skills-matching program. Other companies have followed suit including those in contact centers, knowledge processing and banking operations (Imperial, 2017; Asia-Pacific Forum, 2012). Nonetheless, statistics show that the opportunities are not equal, with at least 85% of PWDs still at a disadvantage when applying for jobs. This is because hiring PWDs means additional funds for training; most companies and other commercial establishments do not allocate budget for preparing PWDs including people with IDs to a life of work in a corporate setting (Guinto, 2007).

Meanwhile, studies have shown that people with ID have the capacity to learn, develop and grow depending on the extent of their impairment and the amount of support they get from the environment (Pierangelo & Giuliani, 2004; Hallahan et al, 2009; Wehman et al, 2014). Additional studies (McGlinchey et al, 2013; Hannagan, 2011; Yap, 2011) have shown further that given the proper training and support, people with ID can be productive, motivated and dependable in jobs given them. They work better because their self-worth is enhanced through jobs that enable them to support themselves (Benlayo-Blanca, 2009). Thus, programs to enhance skills and make people with ID more employable have been developed to ease the transition of a person with ID to a normal adult life (Buss, 2012). Barron (2012) observes that adults with disabilities are able to work in country businesses after learning basic job skills. Some can also be taught certain computer skills allowing them to work in companies that use these technologies (Muer, 2015).

This study was inspired by a 2012 gathering of families in a park in the Philippines to celebrate Earth Day. The activities included, among others, are the re-use and recycling of tetra packs to protect the environment. With support from Tetra-Pak Philippines, participants produced notebooks, paper bags, toys and other products and designs. Moreover, a non-government organization called KILUS Foundation (KILUS Foundation) was also creating products like bags, placemats, pencil cases, wallets, etc. from recycled tetra packs, also to help clean the environment, sell the products locally and abroad, and give livelihood to impoverished citizens of their community. This study utilized the KILUS foundation program. This was modified so that it can be used to train youth with intellectual disability and determine whether they can be taught skills that they can use to make crafts as their source of livelihood that will sustain them and ensure that they can be independent financially.

## 2. Methodology

The study utilized both quantitative and qualitative research designs. The learning tool made use of the direct instruction model to teach people with ID skills in recycling the materials and converting these to bags. The evaluation of learning was done using both quantitative and qualitative methods. The quantitative evaluation used was the single pretest-posttest experimental design while the qualitative research design used observation notes and interviews to evaluate the effect or reaction of the participants to the training.

### 2.1. Participants

Seventeen (17) people with ID, aged 16-24, and diagnosed with mild to moderate intellectual disabilities were selected as participants in the study. The age group was chosen based on the description of the American Association of People with Disabilities (AAPD, 2000) that the transition age of youth with disabilities for training them into independent persons is from ages 16-24. There were 3 females and 14 males; the average chronological age was 20.35. The subjects came from self-contained transition classes for people with ID in two public schools located in Metro Manila, Philippines. Only participants whose presenting disability was cognitive in nature and did not have other physical impairments were included in the study. In addition, participants must have been able to follow verbal instructions, and demonstration, manipulate materials using fingers and insert and pull shoelaces for them to be considered in the study. All participants were anonymized.

## 2.2. Implementation of the training modules

The training program was adopted from KILUS Foundation's program, which included methods and procedures in creating bags out of used and rejected tetra packs. KILUS's existing program was modified to suit the functional level of people with ID.

Prior to implementation of the training modules, a student's performance evaluation scale for the pretest and posttest, and the questionnaires for observation and interview guide questions as data-gathering instruments were developed and validated for the modified program. A statistician or expert in the field also evaluated the pretest and the posttest to ensure objectivity and validity.

The teachers of the student-participants accomplished the pretest and posttest and were also observers during data gathering. The performance evaluation scale contained the skills specified, (i.e., work skills, work behavior and work knowledge). Observation notes and interviews were also collated and tabulated and used to support the results of the pre- and post test. A panel consisting of experts evaluated the information gathered to determine whether the participants were able to follow instructions and learned from the training.

This training program consisted of four (4) main modules with sub-modules. Modules 1 and 2 introduced the students to what recycling is, and the materials and preparation needed in recycling tetra-pack to make bags. Modules 3 and 4 provided the step-by-step procedure in making bags out of recycled, i.e. used or rejected tetra packs. Training was implemented for 1.5 hrs per day for 19 days or 29 hours for School A and 13 days or 20 hours for School B. The modules were designed such that each one answered one of the research questions the study was attempting to answer. The training program used a direct instruction model wherein participants were provided explicit and step-by-step directions for every activity in the module. For people with ID, the direct instruction is most appropriate as it allows them to learn few skills at a time. The activities included hands-on, semi-independent and independent work by the participants. For each activity, teacher-observers manually recorded the participants' individual behaviors and their interactions utilizing an observation questionnaire. In addition, the teacher-observers were also interviewed for information that may not have been captured through their observations.

## 2.3. Statistical Analysis

The statistical analysis utilized paired t-test to determine whether there were significant differences in the participant's skills and behaviors before and after the training and implementation of the program, i.e. to determine if "learning" took place. A two-tailed p value of  $<0.05$  was considered statistically significant.

## 3. Results And Discussion

The study was conducted in two (2) public schools with self-contained transition class for people with ID. There were seventeen (17) participants: three (3) females and fourteen (14) males. Their ages ranged from sixteen (16) to twenty-four (24) years old with an average chronological age of 20.3 years old.

### 3.1. Data Analysis

**Research Question 1:** What were the work skills of youth with intellectual disability before and after program implementation; specifically, in the preparation of tetra packs and other materials, cutting and folding, and assembling these into bags?

The work skills of each participant were tested before (pretest) the intervention to determine the existing competencies in bag-making using recycled tetra pack. After the test, the participants underwent several training sessions, each session providing specific activities to help the participants follow the step by step process and acquire the skills on how to make a bag using recycled tetra-packs. The tasks were distributed into different sessions - each one with a different set of goals or objectives. After the intervention, the same tool was used to determine significant differences. The table below (Table 1) shows the outcome of the training sessions based on the comparison of the pretest and posttest results:

**Table 1. Work Skills Pretest and Posttest Result.** Table 1 shows the summary of the participants' Performance Evaluation Scale. The number on top of each box indicates how many participants while the number below shows the percentage of the participants that have a rating of their work skills of 5 as poor, 4 as fair, 3 as average, 2 as good, and 1 as excellent.

Work skills	PRETEST						POSTTEST				
	5	4	3	2	1		5	4	3	2	1
1. Opening tetra-packs using a pair of scissors.	0	2 11.76%	9 52.94%	6 35.29%	0		0	0	0	5 29.41%	12 70.59%
2. Cleaning tetra-packs	0	1 5.88%	10 58.82%	6 35.29%	0		0	0	0	3 17.65%	14 82.35%
3. Drying tetra-packs	0	0	11 64.71%	6 35.29%	0		0	0	0	3 17.65%	14 82.35%
4. Marking tetra-packs with the prescribed measurement using a marker	3 17.65%	3 17.65%	7 41.18%	4 23.53%	0		0	0	1 5.88%	8 47.06%	8 47.06%
5. Cutting tetra-packs into strips by following the line	3 17.65%	4 23.53%	6 35.29%	4 23.53%	0		0	0	1 5.88%	9 52.94%	7 41.18%
6. Folding tetra-packs strips	4 23.53%	5 29.41%	4 23.53%	4 23.53%	0		0	0	4 23.53%	5 29.41%	8 47.06%
7. Pasting edge of each strip to another strip	5 29.41%	5 29.41%	3 17.65%	4 23.53%	0		0	0	5 29.41%	5 29.41%	7 41.18%
8. Weaving tetra-pack strips	5 29.41%	2 11.76%	4 23.53%	6 35.29%	0		0	0	4 23.53%	3 17.65%	10 58.82%
9. Forming weaved tetra-packs into bag	8 47.06%	3 17.65%	4 23.53%	2 11.76%	0		0	2 11.76%	6 35.29%	8 47.06%	1 5.88%
10. Cutting excess material from finished product	10 58.82%	1 5.88%	4 23.53%	2 11.76%	0		0	2 11.76%	7 41.18%	7 41.18%	1 5.88%
<b>TOTAL OF PRETEST</b>	<b>38</b>	<b>26</b>	<b>62</b>	<b>44</b>	<b>0</b>		<b>0</b>	<b>4</b>	<b>28</b>	<b>56</b>	<b>82</b>
<b>TOTAL OF POSTTEST</b>							<b>0</b>	<b>4</b>	<b>28</b>	<b>56</b>	<b>82</b>

Table 1 shows the work skills of the participants before and after the training. In a scale of 1-5, where 1 is the highest and 5 is the lowest, the results show that for mechanical skills where very little intellectual input is needed (work skills 1-3), most of the participants have a higher rating, i.e. a score of 2 and 3. This is because some of them can already hold a pair of scissors to open food packages. After the intervention, all scores were higher, i.e. 1 or 2.

The pretest ratings for the skills that require more intellectual inputs (work skills 4-10) show a wider range, i.e. 2-5. After the intervention, most participants showed improvement in work skill scores to 1-3, except for work skills 9-10 for which the scores range from 1-4, with majority of them having scores of 2 and 3. Before the training, some of the participants had a hard time following the correct width measurement of the strips, then cutting the tetra-packs into strips by following the marked line, and folding the strips into half lengthwise. Although they had the ability to hold the scissors properly and cut food packs, they had problems following straight lines. Three (3) or 17.65% of the participants did not know how to use a ruler properly. Instead of following the thickness of a standard ruler, they would place the ruler randomly on top of the tetra-packs. They also found it difficult to paste the edges of and weave the strips together, forming the woven strips into a bag, and making the finishing touches, which is, cutting and pasting the excess material.

After the intervention, the participants were able to place the ruler properly and draw lines to indicate the strips that had to be cut. Seven (7) out of the 17 participants or 41.18% showed excellent performance and were able to cut following the straight line - slowly and with focus. An additional 9 participants (52.94%) were rated 2 for also doing a good work. Seven (7) or 41.18% could also easily fold and paste the strips together, making sure each edge aligned with the other half. They were more focused and not in a hurry to finish the task. Majority (58.82%) of the participants were able to weave properly, alternating the strips and making sure that the strips fit closely together. One participant was able to easily form the woven strips into a bag while 8 also did a good work and were rated 2. The participants were able to close and cut excess material of the woven bag, with only 2 (11.79%) participant needing guidance. The data in the table was substantiated by visual observation as supplement for the pretest and posttest and the module rating scale. Observation notes recorded during the training sessions provided the qualitative assessment of the effect of the training sessions on the ability of the participants to acquire the needed work skills. The training sessions for Module 1 recorded answers to guide questions on work skills acquired during the training.

Table 2 presents the guide questions on work skills for each training session and the resulting observation notes by the teacher-observers.

**Table 2. Summary of the observation notes for Work Skills including the Guide Questions.**

Session on Work Skills	Guide Questions for teacher-observers	Observation notes
Session 1: Opening and Cleaning Tetra Packs	<p>Was the student able to follow the step-by-step procedure in cleaning the used tetra-packs?</p> <p>Was the student able to cut the used tetra-packs open using a pair of scissors?</p> <p>Was the student able to wipe the tetra-packs clean using the rags, and basin with water and soap?</p> <p>Was the student able to master the step-by-step procedure in cleaning the used tetra-packs?</p>	<p>Majority of the participants were able to cut open the tetra-packs using scissors which they were able to hold properly. Most were also able to clean the material, and mark and cut these to the desired pattern and measurement as demonstrated or directed by the instructor.</p> <p>Without prodding, the participants took the scissors from the container and used it to open the used tetra packs. The participants learned how to clean tetra packs by wiping these instead of submerging into water to prevent the material from getting wrinkled during the lecture and demo phase. They said "Ma'am akala po namin, para linisin ang mga tetra packs binababad sa tubig na may sabon, hindi pala. (Ma'am we thought that we should submerge the tetra packs into a basin full of water with soap, but we were wrong)." The participants took a rag, dip it into the basin containing the water with soap, and squeeze out the water. The rag was used to wipe the surface of the tetra pack. The tetra packs were then rinse using another rag dipped in water only. Then the participants dried it up with a third rag. Some participants were able to squeeze the liquid out of the rag, but some took longer in the hands-on phase because they had a hard time squeezing the water out of the rag. Despite some students needing more time to do the tasks during the hands-on and semi-independent phase, the participants were able to follow and master the step-by-step procedure in cleaning the tetra packs.</p>
Session 2: Drawing Lines to Make Tetra Pack Strips	<p>Was the student able to follow the step-by-step procedure in marking the tetra packs to make the strips?</p> <p>Was the student able to accurately draw a straight line to mark the tetra packs for cutting ?</p> <p>Was the student able to master the step by step procedure in measuring the tetra-pack strips?</p>	<p>Some participants were able to follow the correct measurement, which is the width of the ruler. On the other hand, there were those that just placed the ruler on top of the tetra pack without putting the ruler at the edge of the line drawn before. However, after the hands-on training with the instructor, the participants were able to mark the tetra packs with the correct measurement.</p>
Session 3: Cutting the Tetra Packs into Strips	<p>Was the student able to follow the step by step procedure in cutting the marked tetra-packs?</p> <p>Was the student able to properly use the pair of scissors to cut along the marked strips?</p> <p>Was the student able to master the step by step procedure in cutting the tetra-pack into strips?</p>	<p>The participants took three sessions before they were able to cut the tetra packs into straight strips. They could hold the pair of scissors properly. However, there were those who had to undergo more training to refine their cutting skills, and make straight cuts. The instructor reminded the participants to remain focused, follow the line, and cut slowly, to make sure that they cut the tetra packs into straight strips.</p>
Session 4: Folding the Tetra Pack Strips	<p>Was the student able to follow the step by step procedure in folding the tetra-pack strips in half (lengthwise)?</p> <p>Was the student able to fold the tetra-pack strips neatly and accurately?</p> <p>Was the student able to master the step by step procedure in folding the tetra-pack strips?</p>	<p>Before the training, only few, i.e. four participants were able to fold the strips neatly and accurately. However, after a few sessions of training, a total of 8 participants were able to fold the tetra pack strips, neatly, accurately, and in an excellent manner, while 5 also showed good performance. Thus they just needed to practice or be trained to be able to fold the strips accurately.</p>
Session 5: Pasting Tetra Pack Strips Together	<p>Was the student able to follow the step by step procedure in pasting the tetra-pack strips together to make it longer?</p> <p>Was the student able to paste the tetra-pack strips, neatly and accurately?</p> <p>Was the student able to master the step by step procedure in pasting the tetra-pack strips?</p>	<p>It was noted that before the training only 4 participants were able to paste the strips together correctly but with scores that were only good. The rest had a hard time putting the strips together in the right position, which caused distortion of the finished product. With thorough hands-on and semi-independent training session, the participants were able to connect or paste the strips in the correct manner.</p>
Session 6: Weaving of Tetra Pack Strips	<p>Was the student able to follow the step by step procedure in weaving the tetra-pack strips?</p> <p>Was the student able to weave the tetra-pack strips, neatly and accurately?</p> <p>Was the student able to master the step by step procedure in weaving the tetra-pack strips?</p>	<p>After the hands-on training, the participants were able to weave the tetra pack strips by alternating the strips with one another. After taking the strips, the participants started weaving by alternatingly pulling up the strips and placing the strips between them. Participants also made sure that the strips were closely fitted to one another.</p>
Session 7: Forming Weaved Strips into Bag	<p>Was the student able to follow the step by step procedure in assembling weaved tetra-pack strips into a bag?</p> <p>Was the student able to assemble weaved tetra-pack strips into a bag, neatly and accurately?</p> <p>Was the student able to master the step by step procedure in assembling weaved tetra-pack strips into a bag?</p>	<p>Six (6) participants were able to do the task easily although they were just rated good, while 5 had difficulty folding the woven strips into a bag, neatly and accurately. The hands-on training and constant help from the instructor were needed to be able to form the weaved strips into a bag.</p>
Session 8: Cutting Excess Material	<p>Was the student able to follow the step by step procedure in cutting the excess strip or material from the assembled tetra-pack bag?</p> <p>Was the student able to cut the excess strip or material from the finished product, neatly and accurately using a pair of scissors?</p>	<p>Participants were taught how to lock and cut excess materials or strips from the formed bag. Participants from both schools took only one day to finish the tasks, although majority of the participants asked the instructor's help to be able to do the task. Some of the participants would just hide the excess material in the weaved part of the bag, while others cut randomly, such that some excess remained jutting out of the bag. Before the training 10 out of 17 participants had very poor skills in removing excess material from the formed bag. Before the training, 14 of the 17 participants needed the help of the teacher to be able to do the task. After the training, 14 participants had average to good skills with one rated excellent.</p>

Fig. 1 shows a student-participant making a backpack out of recycled tetra packs by following verbal and visual cues, and instructions during the demonstration, then designing the product, as he desired.



**Fig. 1. A participant creating a backpack out of recycled tetra packs**

The results show that teaching using the direct instruction method wherein the students were taught using the four phases: (1) lecture and demo; (2) hands-on exercises; (3) semi-independent performance; and (4) independent performance were able to help the participants improve their work skills for this specific task. The participants acquired work skills such as cutting with scissors properly, marking lines using a ruler, pasting materials together, weaving and assembling materials together to form a desired shape.

In addition, the training has also allowed the participants to acquire the skills in following directions - at least to be able to accomplish the given task daily. Once the participants acquired the knowledge and skills, they tried making it on their own during the semi-independent performance. Upon seeing that the participants had acquired the necessary skills, the instructor allowed them to do the task independently. Using this method, the participants were able to master majority of the skills needed in making bags using recycled tetra packs.

**Research Question 2:** What were the work behaviors of youth with intellectual disability before and after the program implementation; specifically, in the areas of willingness to participate, focus and attention, and sense of closure in making bags out of recycled tetra packs?

**Table 3. Work Behavior Pretest and Posttest Result.** The table shows the summary of the participants' Performance Evaluation Scale. The number on top of each box indicates the number of participants while the number below shows the percentage of the participants that have ratings of their work skills of 5 as poor, 4 as fair, 3 as average, 2 as good, and 1 as excellent.

Work Behaviors	PRETEST					POSTTEST				
	5	4	3	2	1	5	4	3	2	1
1. Showing interest in doing tasks	0	1 5.88%	6 35.29%	10 58.82%	0	0	0	0	1 5.88%	16 94.12%
2. Showing willingness to participate in the given tasks	0	1 5.88%	4 23.53%	12 70.59%	0	0	0	0	1 5.88%	16 94.12%
3. Asking questions for clarification	2 11.76%	3 17.65%	5 29.41%	7 41.18%	0	0	0	1 5.88%	4 23.53%	12 70.59%
4. Sitting long enough to finish cleaning tetra-packs	0	4 23.53%	4 23.53%	9 52.94%	0	0	0	0	2 11.76%	15 88.24%
5. Exhibiting imitation skills	1 5.88%	3 17.65%	8 47.06%	5 29.41%	0	0	0	2 11.76%	4 23.53%	11 64.71%
6. Requesting voluntarily and politely for materials when needed from the person-in-charge of the materials	4 23.53%	1 5.88%	4 23.53%	8 47.06%	0	0	0	3 17.65%	4 23.53%	10 58.82%
7. Focusing on tasks	2 11.76%	1 5.88%	7 41.18%	7 41.18%	0	0	0	2 11.76%	4 23.53%	11 64.71%
8. Finishing tasks in given periods of time	1 5.88%	2 11.76%	7 41.18%	7 41.18%	0	0	0	1 5.88%	7 41.18%	9 52.94%
9. Seeking help, when needed, instead of showing unwanted behavior	2 11.76%	1 5.88%	5 29.41%	9 52.94%	0	0	0	2 11.76%	2 11.76%	13 76.47%
10. Performing the task given with minimum supervision	2 11.76%	2 11.76%	6 35.29%	7 41.18%	0	0	1 5.88%	2 11.76%	5 29.41%	9 52.94%
<b>TOTAL OF PRETEST</b>	<b>14</b>	<b>19</b>	<b>56</b>	<b>81</b>	<b>0</b>					
<b>TOTAL OF POSTTEST</b>						<b>0</b>	<b>1</b>	<b>13</b>	<b>34</b>	<b>122</b>

Table 3 shows that before the intervention, scores on work behavior ranged from 2-5, with 2 unable to ask questions to clarify instructions, focus on the tasks at-hand, seek help or perform the task with minimum assistance. Four (4) were also unable to request materials politely and voluntarily. Although majority (10-12) showed interest and willingness to do the task, a few could be observed talking to their co-participant or walking around the room. After the training, the number of participants that showed interest and willingness to do the task rose to 16 out of 17 or 94.12%. All work behavior ratings were up to 1-3. Majority (58.82%-94.12%) showed an improvement in work behavior after the training. It is interesting to note that 15 out of 17 or 88.24% were able to sit long enough to finish the task. Only 1 was given a rating of 4 or fair in accomplishing the task as he needed supervision.

Table 4 shows additional information or observation notes regarding the participants' behavior during the intervention.

**Table 4. Summary of the observation notes for Work Behavior including the Guide Questions.**

Session on Work Behavior	Guide questions for teacher-observers	Observation notes
Session 1	Was the student interested and willing to participate in doing the tasks to create a bag? Was the student focused and attentive during the sessions for making bags from recycled tetra packs? Was the student able to show interest in getting the materials needed or asking for them politely? Was the student able to finish tasks given per session? Does the student ask help when needed?	Most participants showed willingness to participate in doing the tasks, followed directions and were able to sit long enough and focus on the task at hand until it was completed. The participants were also taught social skills (e.g. courtesy or politeness) such that by the middle of the training program, majority of the participants would use polite words to request for any materials or make any personal request from their classmates, e.g. <i>"Paki-abot ng gamit ko (Can you pass my things please?)"</i> , <i>"Pahingi po ng glue (May I ask for some glue?)"</i> , or <i>"Patulong po sa pagbuo ng bag (Kindly help me with forming the bag)"</i> . It was also observed that each participant wanted to finish the task on time and were actually competing with each other. None showed unruly behavior such as tantrums, or getting angry for not completing a task or for being unable to follow directions.

After the intervention, all participants became very interested with the task. It was observed that the participants were happy to see the instructor coming to class as the sessions progressed. The participants would immediately and willingly prepare the classroom (i.e., kept their things, cleared the table, sat down on their chairs) while waiting for the instructor to start. Upon the signal of the instructor to get the materials, the participants would immediately stand, retrieve the materials from the cabinet and table, and start the task.

Before the training, these participants had problems following directions. They also had a hard time sitting down, doing the task, and focusing on the task at-hand. They would simply do the task and once they did not like finishing the task, they simply stopped. Participants who did not finish that day would be asked to continue the task the following session. After the intervention, participants were determined to finish the task at that given time. They also praised one another for a job well done. All participants showed willingness to help their classmates after finishing their own task. Thus, the teacher-observers noted that the participants were very interested, willing, focused and patient, and persevered to do every task to be able to make a recycled tetra pack bag. The participants also learned to be more polite in asking for things they needed and when talking to others.

**Research Question 3:** What were the work knowledge of youth with intellectual disability before and after the program implementation; specifically, following directions, measurement of materials/products, and knowledge about the benefits of recycling in relation to making bags from recycled tetra packs.

**Table 5. Work Knowledge Pretest and Posttest Result. The table shows the summary of the participants' Performance Evaluation Scale. The number on top of each box indicates the number of participants while the number below shows the percentage of the participants that have a rating of their work skills of 5 as poor, 4 as fair, 3 as average, 2 as good, and 1 as excellent.**

Work Knowledge	PRETEST						POSTTEST				
	5	4	3	2	1		5	4	3	2	1
1. Identifying the different materials needed in making bags	2 11.76%	1 5.88%	5 29.41%	9 52.94%	0		0	0	0	2 11.76%	15 88.24%
2. Identifying the benefits of recycling to the environment	2 11.76%	5 29.41%	3 17.65%	7 41.18%	0		0	0	3 17.65%	7 41.18%	7 41.18%
3. Following directions	3 17.65%	2 11.76%	7 41.18%	5 29.41%	0		0	0	1 5.88%	4 23.53%	12 70.59%
4. Following appropriate sequence of the procedure in making tetra-pack bag	3 17.65%	3 17.65%	7 41.18%	4 23.53%	0		0	0	2 11.76%	5 29.41%	10 58.82%
5. Performing the task as shown in picture cues or as stated by verbal cues	4 23.53%	2 11.76%	7 41.18%	4 23.53%	0		0	0	1 5.88%	6 35.29%	10 58.82%
6. Associating materials with the tasks	4 23.53%	5 29.41%	2 11.76%	6 35.29%	0		0	0	3 17.65%	5 29.41%	9 52.94%
7. Demonstrating ability to match, combine and group materials according to needs	7 41.18%	5 29.41%	0	5 29.41%	0		0	1 5.88%	9 52.94%	3 17.65%	4 23.53%
8. Knowing when the tasks is completed	3 17.65%	3 17.65%	5 29.41%	6 35.29%	0		0	0	1 5.88%	5 29.41%	11 64.71%
9. Organizing materials after the task is done for the day, according to the label such as tetra-pack strips, glue, or paste, etc.	5 29.41%	7 41.18%	2 11.76%	3 17.65%	0		0	0	10 58.82%	3 17.65%	4 23.53%
10. Seeking help, when needed, in accomplishing tasks he finds difficulty in	3 17.65%	3 17.65%	5 29.41%	6 35.29%	0		0	0	2 11.76%	5 29.41%	10 58.82%
<b>TOTAL OF PRETEST</b>	<b>36</b>	<b>36</b>	<b>43</b>	<b>55</b>	<b>0</b>						
<b>TOTAL OF POSTTEST</b>							<b>0</b>	<b>1</b>	<b>32</b>	<b>45</b>	<b>92</b>

Table 5 shows that 2 or 11.75% of the participants were not able to identify the materials needed and the benefit of recycling before the intervention, while 3 could not follow directions or the step-by-step procedure in making the bag. It was manifested that the participants were not familiar with some of the items presented. Some participants were also not familiar with the word recycling or its benefits to the environment. However, after the intervention, 15 out of 17 participants were able to identify all while 2 or 11.76% were able to identify majority of the materials, and its use; they were also capable of expressing the benefits of recycling in the classroom.

With regards to other work knowledge criteria, 4 (23.53%) students could not associate materials with the tasks while 7 (41.38%) lacked the ability to match, combine and group the materials according to their needs prior to the training. By the end of the training sessions, all participants could associate materials with the tasks with ratings of average (3) to excellent (1). Except for 1 participant who showed only fair rating on the ability to match, combine and group the materials, all other participants were rated average (3) to excellent (1) in this work knowledge criterion. All other criteria showed similar results, i.e. knowledge of when tasks are completed, organizing materials and seeking help when needed by the participants showed marked improvement and were rated 3-1 after the intervention.

Table 6 shows the work knowledge observation notes to support the quantitative results.

**Table 6. Summary of the observation notes for Work Knowledge including the Guide Questions.**

Session on Work Knowledge	Guide questions for teacher-observers	Observation notes
Session 1	<p>Was the student able to identify the different recyclable materials?</p> <p>Was the student able to give ways on how to recycle each recyclable material?</p> <p>Was the student able to tell the importance of recycling?</p>	<p>Teacher-observers noted that after the training, 10 out of 17 participants were able to do the task well as instructed or as verbally cued. They were even able to remember and follow the rules stated before the start of the training program. They were able to do the task as demonstrated by the instructor. They were able to follow appropriate sequence of the procedure in making tetra pack bag.</p> <p>Nine (9) out of 17 participants were able to associate the materials that the instructor showed to them with the task that they were going to do. When the instructor placed the glue on the table, a participant would say, "<i>Magdidikit tayo ngayon</i> (Now, we will paste materials together)", and when the instructor placed a pair of scissors on the table, the participant would say, "<i>Maggugupit tayo</i> (We are going to cut materials)". Since a number of the participants knew the use of the materials, they were able to easily associate these with the tasks that they were going to do for the day.</p> <p>Observers also noted that before the intervention, only 7 students had an idea of what recycling was and its benefits to the environment and to them. After the intervention, however, most participants had some understanding of what recycling is. One of the participants said, "<i>Ginagamit ulit ang isang bagay na patapon na upang gawing ibang bagay na magagamit muli tulad ng papel na ginagawang basket, latang gagawing alkansya</i>" (A material considered trash can be recycled to create something that can be used such as baskets from paper, piggy banks from cans).</p>

Before the training, when the teachers asked the students to bring out an item or material, the participants would simply bring them out without stating what the materials were for or what they were expected to do with them. Participants would also wait for their teachers to tell them that they were done before they kept the materials. Some of them would wait for their teachers to approach them and explain the task whenever they needed help.

After the intervention, the participants were able to follow directions or instructions given by the instructor with minimal prompting to none at all. Participants also associated the materials with the task for the day. This is because all the participants were attentive, focused, and interested on the task. Participants also classified all items and grouped together the same materials before putting these inside the cabinet. Participants knew what they were expected to finish for the day so that they knew when they were done or not. Majority of the participants now raised their hands and asked for help whenever they needed help.

**Research Question 4:** Is there a significant difference between the pretest and posttest performance of youth with intellectual disability in different competencies?

Table 7 below shows the mean of the evaluation scores of the pretest and the posttest performance of participants with intellectual disabilities in different competencies related to making bags out of recycled tetra-packs.

**Table 7. Comparison of the pretest and posttest performance evaluation scores of the participant people with ID in the training sessions to learn skills for making bags out of recycled material. The data is presented as mean ± standard deviation.**

	PRETEST	POSTTEST
Work Skills	33.29 ± 8.77	17.29 ± 5.90
Work Behavior	28.00 ± 7.12	13.71 ± 4.96
Work Knowledge	33.12 ± 9.98	16.59 ± 5.64

In the performance evaluation score, 5 is equivalent to poor, 4 is fair, 3 is average, 2 is good and 1 is excellent. Thus, a higher score meant lower performance in work skills, work behaviors and work knowledge. Using paired t-test, the results showed that there was a statistically significant lower posttest score which meant better performance as compared to the pretest scores which showed a higher score or a lower performance in the work skills, work behavior, and work knowledge with their corresponding p-values at 0.000.

The pretest and posttest scores on the Student's Performance Evaluation Scale for work skills showed that the skills of the participants improved after the training program. The total average of 33.29 from the pretest to the total average of 17.29 on the posttest showed that work skills increased from between fair-average to good-excellent based on the scale. Even among the 13 participants from School B who already had some skills such as using the pair of scissors, cleaning, drawing lines, cutting, folding, pasting and weaving before the training, improvement was still observed. This was supported by the qualitative data from the observations on the hands-on, semi-independent, and independent activities that each participant engaged in.

The participants' work behaviors also showed a significant difference from before and after the intervention. Specifically, social skills related to dealing with peers and other people particularly in making polite requests for materials, increasing their patience and perseverance to finish the tasks, and their interest and willingness to participate in the activity improved as shown in Table 3.

There were also significant improvements in the work knowledge skills of the participants. A significant difference in the pretest and the posttest scores was shown statistically using paired t-test at confidence level of 100%. Some participants were able to learn recycling and its benefits which was evident also in the observation noted by the teacher-observers. The participants' overall knowledge regarding recycled tetra pack bag-making improved from the start of the training program until the completion of the modules.

The training conducted to make bags by recycling used tetra packs increased overall work skills, behavior and work knowledge of the participants as shown by marked improvement in quantitative scores, and supported qualitatively by observation from teacher-observers. Thus, the modules used for intervention in this study for teaching skills in recycled tetra pack bag-making is an effective tool for this group of youth with intellectual disability. The module may be used in institutions offering livelihood training for youth with ID. It may also be considered as a model training program for other PWDs and other livelihood training programs that can possibly provide employment and financial sustainability for PWDs in the Philippines.

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