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Using Computer Applications in Teaching Play Skills to Children with Autism Spectrum Disorder

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Abstract

Play is an essential skill for children in early intervention settings and contributes to social and emotional development. Children with autism spectrum disorder (ASD) often show significant delays in action-on-object play skills, vocalizations during play, and novel responding. By assessing and targeting play, children with autism can acquire play skills which may increase the likelihood of inclusion in a classroom setting and provide increased opportunities for peer and adult interaction. The current study evaluated the effects of apps as a video model to increase the duration of play, independent and novel action-on-object play, and independent and novel vocalizations during play. Current assessment and intervention strategies, as well as the need for further research making use of current technology and apps to increase play skills for school-age children with autism are discussed.

Introduction

Play is a universal human experience and provides the opportunity for children to practice communication, social interaction, emotional regulation, and process sensory input (Lang et al., 2009). Play develops in stages, beginning with solitary play, parallel play, and cooperative play (Hampshire & Hourcade, 2014). As play skills develop, sequences emerge. Children begin involving peers in their play and begin to assign attributes to toys and imagine uses for objects other than those intended, like using a block to represent a car or a stick as a magic wand. Children with ASD often show delays in the development of play behaviors (Kasari et al., 2013), often engage in less play (Stahmer et al., 2006), and may not naturally develop symbolic and imaginative play without direct training (Kasari et al., 2013). Targeting play skills in early intervention has been shown to increase the likelihood of a child being placed in an inclusive classroom when they begin school (Lifter et al., 2011).

Teaching children to engage with common classroom materials leads to increased independence and increased opportunities for peer interaction and should be included in early intervention programming. Children who do not play or who play differently may be stigmatized. For example, if a child cannot imagine that a banana is anything other than a banana, they may struggle to understand a peer using a banana to represent a telephone (Brown & Murray, 2001). Research has highlighted correlations between play and gains in expressive language, social skills, emotional regulation, reading abilities, sensory processing, and the reduction of stereotypical behavior (Lang et al., 2009; Lifter et al., 2011). As stated in Stanley and Konstantareas (2007), Stahmer (1995) found that teaching

pretend play led to an increase in social interaction, even when social interaction was not directly targeted. Research on teaching play to children with ASD has illustrated the importance of targeting this skill, and diagnostic tools for ASD screen for deficits in play skills (Lang et al., 2009).

Measuring and assessing a child's repertoire of play skills proves difficult due to variability in defining play (Lifter et al., 2011). A child can play with a caregiver, alone, or with a peer. Play may be functional (using objects in their intended manner) or involve imagination. Play can be loud and social, with several children chasing one another on a playground, or quiet and solitary, with a single child sitting and rocking a baby doll to sleep. Play may have structure and rules, such as in a board game, or be entirely free form, with children creating a scenario and changing the structure as it evolves (Eberle, 2014). As cited in Terpstra and colleagues (2002), Wolfberg (1995) developed a guide for observing play behaviors that evaluates the symbolic aspects of play across four categories: no interaction with the material, manipulation of materials, functional manipulation of materials, and symbolic use of materials. The social aspect of play behaviors identifies if the child plays alone, plays while oriented towards another child, plays next to another child or engages with other children during play (Terpstra at al., 2002).

Several direct assessments identify gaps in play behaviors. For example, the Symbolic Play Test (SPT) developed by Lowe and Costello (1976), is a measure to assess symbolic functioning in children between 12 and 36 months (as cited in Gould, 1986). Children received four sets of toys and assessors observe interactions with the objects according to a standardized checklist (Stanley & Konstantareas, 2007). Similarly, Mundy and colleagues (1996) developed the Early Social-Communication Scales (ESCS), which is an assessment that evaluates joint attention skills. The child has access to the toys, and bids for joint attention or responses to bids for joint attention from the tester are measured (Kasari et al., 2006). Another assessment, The VB-MAPP Milestones Assessment, includes sections to assess independent play skills, such as object manipulation, variety, generalization, symbolic play, and pretend play. This assessment also identifies gaps in social play behaviors, including observing other children, parallel play, following/imitating peer behavior, initiating physical interaction, manding to and responding to mands from peers, cooperation, and engaging in pretend play. Other commonly used assessments utilize videotaped sessions to evaluate whether a child engages in sensory-motor play, functional play as either emerging or established, or pretend play as either emerging or established (Brown & Murray, 2001). Composite scores from play assessments compared with developmental assessments reveal a correlation between the progression of developmental and play skills. Assessing the child's current level is crucial in selecting attainable therapy goals (Pierucci et al., 2015).

Interventions targeting play typically focus on teaching one particular skill, whether it be increasing joint attention, teaching functional play, or increased engagement in play with pretense. Barton and Wolery (2008) created a taxonomy of terms that described the various target behaviors of play interventions and their definitions. The functional play category addressed object manipulation, and research often targeted feeding and grooming. Several studies that target object substitution included using an object to represent another object, such as a block in place of a car, and imagining absent objects, such as eating invisible food. Studies included in this taxonomy also targeted assigning absent attributes to objects, such as taking on the role of a doctor, mother, or pretending a

toy stove is hot. Within this taxonomy, Barton and Wolery (2008) analyzed 29 studies and found all contained modeling or video modeling and prompt hierarchies. For example, Kasari and colleagues (2006) targeted both joint attention and symbolic play using a prompt hierarchy, which consisted of a verbal prompt, then a model, then a physical prompt. Three groups participated in the intervention, with one group targeting joint attention, one group targeting symbolic play, and a control group received no intervention. The intervention consisted of a combination of intensive and milieu teaching. Both experimental groups demonstrated significant gains over the control group and responding generalized from the teaching environment to play with caregivers when given the same assessments post-intervention. Interestingly, participants targeted for joint attention also demonstrated gains in functional play with caregivers.

Similar studies have used therapists as models to increase play skills in children with ASD. For example, Pivotal Response Training involves using preferred toys and allowing the child to choose which item he or she will engage with during play, while the therapist models and positively reinforces appropriate interaction with the toy or adult to increase motivation to play (Stahmer et al., 2006). Stahmer (1995) incorporated pivotal response training and effectively increased symbolic and complex play in six children with ASD. However, in a social validity measure conducted in 2006, naïve judges scored the six children who had received pivotal response training lower than typically developing peers, suggesting that while the quantity of symbolic play increased, the quality still differed. The authors recommended that future research evaluate methods to increase creativity and pleasure in play (Stahmer et al., 2006).

Jahr and Eldevick (2007) conducted a study that examined the effects of an intervention targeting interactive play with peers. Three children, ranging from four to seven years old, received instruction on cooperative play skills using modeling, imitation, and verbal description. Before beginning the study, all three participants engaged in one action on an object but did not combine objects or create sequences with the objects. Two adults modeled a play script and then prompted the child to complete the script. During cooperative play, the child was seated with a peer who initiated play. After targeting cooperative play, researchers conducted independent play probes and compared them to baseline. Though not directly targeted, independent play increased in the number and variety of actions, suggesting elaborated sequences in solitary play may increase following social reinforcement.

Another common intervention to target play skills is the use of video modeling. Hine and Wolery (2006) conducted a study using point-of-view video modeling to teach gardening and cooking play sequences to two children with autism. The angle of the camera filmed toys from the child's point-of-view. Both children showed increased engagement in the modeled behaviors. Both generalized to novel toy materials, but not to novel environments. Paterson and Arco (2007) used video modeling to teach two children with ASD independent toy play and the assessed generalization effects on novel toy play. While video modeling produced an increase in both participant's independent toy play, generalization effects only occurred during conditions with related toys observed in the video model.

MacDonald and Sacramone (2009) used video modeling to teach reciprocal pretend play with peers for two children with ASD. Both children quickly acquired scripted and unscripted vocalizations that maintained during

one month follow-up probes. A limitation of this study was the lack of extended novel play in both participants. The authors comment on video-modeling as an explicit prompt that provides the learner to observe a model and then imitate that model, with the imitative response relying on a history of reinforcement for imitation. Boudreau and D'Entremont (2010) conducted a study using video modeling with two four-year-old boys diagnosed with ASD. Participants viewed videos related to two playsets and rapidly acquired scripted verbal prompts and modeled actions that generalized to novel settings and material. However, increases in novel vocalizations or unmodeled actions did not increase. While most studies targeting play involve modeling, there is concern that modeling only teaches imitative behavior, and the child is not engaging in spontaneous behavior, one of the qualifiers for play (Lang et al., 2009).

Today, children are becoming technology-literate at very young ages (More, 2008; Withey, 2017). iPads and other mobile devices are readily available and offer immense versatility (Withey, 2017). Given the prevalence of video games in our society, it would be beneficial for behavior analysts to consider using games in behavior change programming (Morford et al,, 2014). For example, Murdock and colleagues (2013) conducted a study using a play story presented on an iPad to increase play skills in four children with ASD. The format resembled a storybook, where participants viewed six photo slides with a storyline. Every time the participant touched the iPad screen, an accompanying audio clip paired the photos with appropriate scripted verbals. The study aimed to increase play dialogue that would generalize in follow-up, decrease vocal stereotypes (repetitive phrases), and demonstrate an increase in novel and scripted vocalizations. Unlike video modeling, the pictures were static and did not demonstrate the manipulation of the toys. After listening to the story, participants completed the script with a play partner. Three of the four participants showed an increase in utterances of play dialogue, including non-scripted/novel utterances.

Using apps as teaching tools may increase motivation, attention, and cost-effectiveness, requiring fewer staff resources (Murdock et al., 2013). iPads and apps are often interactive, with the game modeling and prompting an action that the player must perform to move on in the sequence of play. Unlike video modeling, where the learner passively observes the video and then demonstrates the skill, apps embedded an active learning component into the model. In other words, the learner touches components in the app and is reinforced by changes in the game, which may aid in programming for generalization to novel play, verbalizations, and environment. Most children already have experience with apps as reinforcers, whereas a video model may be novel. Even if a gaming app is new, the child's history of reinforcement with gameplay may make the app more reinforcing than a video of a therapist manipulating a toy.

In their literature review, Barton and Wolery (2008) asked if children playing interactive computer games containing pretend play themes would be more likely to engage in pretend play with toys. The current study aims to investigate that experimental question further by using apps to increase prompted, independent, and novel action-on-object play and vocalizations. Therefore, the purpose of the current study was to investigate the effectiveness of gaming as a model to increase and generalize action-on-object play and verbal behavior during play, using games which focus on typical preschools play themes such as cooking, doctoring, gardening, and housekeeping, as scripts which will transfer from electronic gameplay to toy sets in the natural environment.

Method

Participants

Two children with autism spectrum disorder (ASD) participated in the current study. Elsa was a four-year-old female, and received 16 hours of Applied Behavior Analysis (ABA) services a week. She completed the 2nd edition of The VB-MAPP (Sundberg, 2014), with a score of 125, placing her in Level Three. Elsa communicated vocally and has an established repertoire of mands, tacts, imitation, and listener skills. She showed deficits in The VB-MAPP Play domain, including engagement in pretend play with peers, playing with items creatively, and engaging in play without adult prompts or reinforcement. Bill was a four-year-old male and received 40 hours of ABA services a week and an hour of speech therapy each week. He completed The VB-MAPP, with a score of 119, placing him in Level Three. Bill communicated vocally and has an established repertoire of mand, tact, and listener skills. He showed play deficits in social play with peers and engaging in pretend/imaginary play.

Setting and Materials

All sessions were each 10 minutes in length and conducted between 12 pm and 3 pm. When multiple sessions were conducted in a single day, they were separated by, at minimum, an hour of work and playtime. All sessions were conducted in a small room, with a small white table, two chairs, and two plastic drawers. The participant engaged with the toy sets on the floor, with only the researchers present and a small window that viewed the breakroom to limit distractions. A total of three apps were used in the current study, which were accessible using Amazon Freetime Unlimited on a Kindle Fire HD (2019). One of the apps was "Doc McStuffins: Baby Nursery," which focused on taking care of a baby doll including bathing, feeding, and putting the baby to bed. Another app was "Daniel Tiger: At Home with Daniel" which involved putting Daniel to bed, brushing his teeth, and playing doctor. The third app "Max & Ruby's Bunny Bake Off" presented cooking scenarios including making lemonade, mud pies, and flan. Play scripts were adapted from each game, and toy sets were assembled to replicate actions presented in games (see Table 1).

Variables, Response Measurement, and Reliability

The primary dependent variable used in the current study was the total duration of play, defined as any instance the participant picked up or manipulated an item in the toy set. A timer started the instant the participant engaged with the item, and the timer stopped when the participant set down the item or had not manipulated it for 20 s. The secondary dependent variable was the frequency of independent action-on-object play, defined as any action that was identical or similar to actions presented in the corresponding app. For example, in the "Doc McStuffins" app, the participant was required to wash the baby's face by selecting a towel and wiping the baby's face back and forth until it was clean. If the participant picked up a towel and wiped the baby's face from the corresponding toy set, this was scored as an occurrence. If the participant picked up a towel from the toy set and began to wipe his or her own face, this would not have been counted as an occurrence. Examples of action-on-objects presented in each of the apps is shown in Table 1. All occurrences of independent action-on-object play were scored only the first time they occurred. For example, if the participant picked up the towel and wiped the baby's face, it would

be recorded as one occurrence, regardless of how many times the participant wiped the baby's face.

Table 1

Apps used in the current study, with the corresponding object, action, and vocalization presented in gameplay.

App	Object	Action	Verbalization
Doc McStuffins: Baby Nursery	Cloth Diaper	Change baby's diaper	"Time for a new diaper."
	Outfit	Put baby in outfit	N/A
	Bath Tub	Put baby in bathtub	"Time for a bath."
	Shampoo	Use toy shampoo	N/A
	Towel	Dry off baby doll	That's a lot of water."
	Bear	Tickly the baby	"Play time!"
	Rattle	Shake rattle	N/A
	Bed	Put baby in bed	"Nap time."
	Baby doll	Rock the baby	"Rocking helps baby sleep."
	Light Switch	Turn off the light	"Good night."
	Bib	Put on bib	"Someone is hungry."
	Spoon	Spoon to baby's mouth	"Nom nom nom."
	Wipe	Wipe baby's mouth	"Someone made a mess."
Daniel Tiger: At Home with Daniel	Drums	Bang on the drums	"Music can show I feel"
	Maracas	Shake maracas	N/A
	Blanket	Cover up the tiger doll	"Oh, my blanket"
	Light Switch	Turn off the light	"Goodnight, Tigey"
	Book	Turn pages of book	Pretend to read a story.
	Otoscope	Put otoscope to tiger's ear	"Let's make believe I'm a doctor."
	Stethoscope	Put the stethoscope on the tiger.	"That tickles"
	Stickers	Shine light in tiger's eyes	"That sounds good and strong."
	Flashlight	Give tiger a shot	"Grrrrific."
	Toy Syringe		"Follow the light with your eyes."
Max & Ruby's Bunny Bake Off	Measuring cup	Tip cup over bowl	"Let's add some cream"
	Box	Put measuring cup in box	"We need one cup of sugar."
	Toy bottle	Tip bottle over bowl	"Let's add a bit of vegetable oil."
	Spoon	Stir spoon in bowl	"Now let's give it a stir."
	Toy oven	Put bowl in the oven	"Into the oven it goes."
	Pitcher	Tip cup over pitcher	"Let's make some lemonade."
	Spoon	Stir spoon in pitcher	"Give it a quick stir."
	Wooden knife	Cut wood lemon in half	"We need some lemon juice."
	Wooden knife	Cut wood strawberry in half	"Add some freshly cut strawberries."
	Spoon	Stir spoon in pitcher	"Let's give it another stir."
	Spoon	Put spoon in pitcher	"Now scoop it up so it's ready to serve.

The third dependent variable was prompted action-on-object play, defined as any instance the participant picked up or manipulated an item in the toy set following a verbal prompt. For example, if the participant was repeating the same action-on-object play, the researcher would deliver the verbal prompt, "You could try this," and directly state an action-on-object response that corresponded with the those presented in the app. The fourth dependent variable was novel action-on-object play, defined as any action that was contextual to the object and situation, but not presented during the app. For example, if the participant held the baby doll up and simulated walking, which was not a feature of the app, this was scored as an occurrence. If the participant put the baby in time-out, which

was not a feature of the app and was not contextual to the object and situation, this would not have been scored as an occurrence. Similar to independent action-on-object play, only the first occurrence was scored. The fifth dependent variable was the frequency of independent vocalizations, defined as any statement that was identical or similar to vocalizations presented in the corresponding app (see Table 1).

Vocalizations that approximated those presented in the app were scored as independent vocalizations. For example, if the participant vocalized, "Night-night," instead of the scripted vocalization "Good night," it was scored as an independent vocalization. Similar to independent action-on-objects, all independent vocalizations were scored only the first time they occurred. If the vocalization was hard to understand or babble, this was not scored as an occurrence.

The sixth dependent variable was the frequency of prompted vocalizations, defined as any participant vocalization that was identical or similar to statements presented in the corresponding app following a verbal prompt. For example, if the participant was repeating the same vocalizations, the researcher would deliver an echoic prompt to state a vocalization that corresponded with those presented in the app. The final dependent variable was the frequency of novel verbalizations, defined as any statement that was contextual to the object and situation, but not presented during the app. For example, if a participant sang a lullaby while putting the baby doll to bed, this was scored as an occurrence. If the participant stated, "She goes to the store," in reference to the baby doll and unrelated to the current context, this was not scored as an occurrence. Similar to independent vocalizations, only the first occurrence was recorded.

An independent observer collected total duration interobserver agreement (IOA) for the duration of play, with 99% agreement. Mean-count-per-interval IOA was calculated for independent action-on-object play and novel action-on-object play, with 86% agreement. Mean-count-per-interval IOA was calculated for independent vocalization and novel vocalizations, with 90% agreement.

Design

A multiple-baseline across participants design was used. The intervention was applied to the second participant when the first had received four intervention sessions, and data demonstrated an increasing trend in action-on-object play and vocalizations in comparison to baseline. Generalization probes were conducted when both participants were consistently performing independent action-on-object play and independent vocalizations at levels significantly higher than baseline.

Procedure

Baseline

Each participant was first instructed to select an app from an array of three apps in the menu function of the tablet. Following participant selection, he or she was provided with five minutes to interact with the gameplay within the app. During this time, dependent on which app the participant selected, the researcher made the corresponding

toy set available for the participant to engage in when the five minutes had elapsed, or the participant had stopped engaging in the app. The researcher then provided the verbal prompt, "Time to play." The researcher interacted minimally with the participant, providing only physical assistance with toy items if requested. No feedback or prompting to manipulate items was provided. If the participant did not engage in an action-on-object play or vocalization for 10 s, the researcher asked, "Are you all done?" If the participant began playing with the toy set, the session continued. If the participant vocalized that he or she was done, the session was terminated.

Teaching

At the onset of each session, participants were instructed to select an app, engage in the gameplay for five minutes, and were provided with the verbal prompt, "Time to play." Verbal prompts were provided if a child engaged in one action-on-object manipulation but did not initiate others in the sequence. For example, when a participant put the baby doll in the bathtub but did not pick up the toy shampoo bottle or towel, a verbal prompt was given to continue the bath sequence. Verbal prompts were also provided if the participant continued with the same action-on-object or vocalizations. If the participant engaged in an action but did not emit the accompanying vocalization, an echoic prompt was given. For example, if the participant began to bang on the drums, but did not vocalize "Music can show how I feel," a verbal prompt was given. Verbal praise (e.g., "Cool," "good job") and specific praise (e.g., "I like how you fed the baby with the spoon," "Great job saying time for a new diaper") was given for performing independent action-on-object play and vocalizations. If the participant did not engage in action-on-object play or vocalization for 10 s, the researcher asked, "Are you all done," if the participant began playing with the toy set, the session continued. If the participant vocalized that he or she was done, the session was terminated.

Generalization Probes

Neither participant selected "Max & Ruby's Bunny Bake Off" during baseline sessions, so it was used for the generalization probe following treatment sessions. Participants were given 5 min to play the novel game on the tablet before being presented with the corresponding toy set. No prompts or verbal praise were provided during generalization probes. If the participant began playing with the toy set, the session continued. If the participant vocalized that he or she was done, the session was terminated.

Results

Duration of Play

Figure 1 shows the duration of play (in minutes) across baseline, teaching, and generalization for each participant. Elsa's baseline demonstrated low variability, low level, and a slight decrease in trend, with an average of 3.55 (range, 3.5 to 4.5) min play. During teaching sessions, there was an immediate increase from 3.5 to 6 min, a high level, low variability, and a slight increasing trend, with an average of 8.15 (range, 6.5 to 9.5) min of play. Elsa's duration of play decreased from 9.5 to 7.5 min, which then decreased to 8 min by the second generalization probe. Bill's baseline demonstrated a moderate level, moderate variability, and an increasing trend that decreased by

session 6, with an average of 4 (range, 2 to 5.5) min of play. During teaching sessions, there was an immediate increase from 3 to 7.5 min, a high level, low variability, and no trend, with an average of 7 (range, 6.5 to 7.5) min of play. Bill's duration of play decreased from 7.2 to 5.5 min of play during the generalization probe.

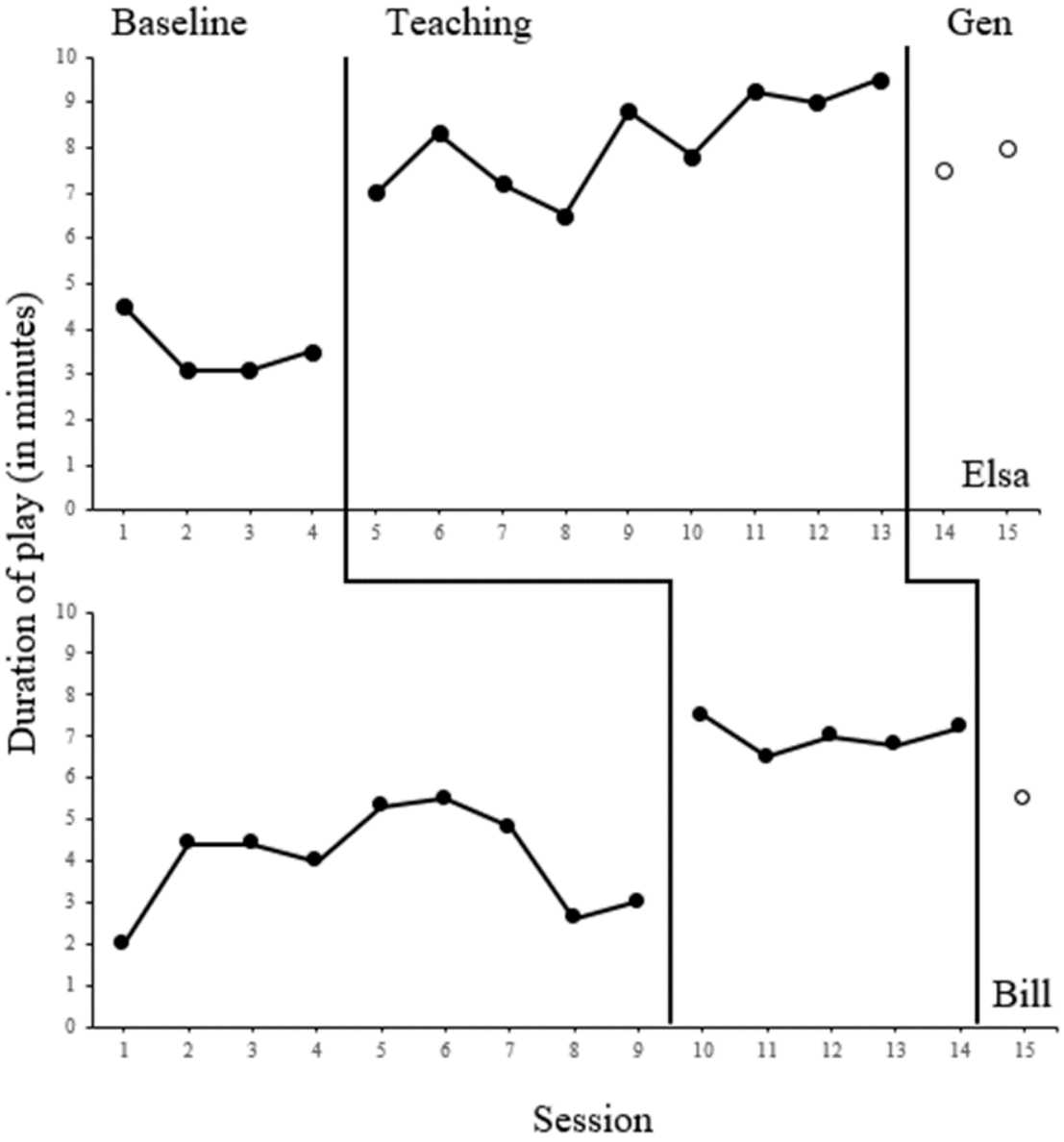

Figure 1. Total duration of play (in minutes) across baseline, teaching, and generalization probes.

Independent Action-on-Object Play

Figure 2 shows the frequency of independent action-on-object play across baseline, teaching, and generalization for each participant. Elsa's baseline demonstrated a moderate level, moderate variability, and a slight decreasing trend, with an average of 5.75 (range, five to seven) instances of independent action-on-object play. During teaching sessions, there was an immediate decrease from five instances to three instances, a moderate level, high variability, and an increasing trend that decreased by session 12, with an average of 8.18 (range, three to 12) instances of independent action-on-object play. Elsa's instances of independent action-on-object decreased from 11 instances to seven instances and decreased to six instances by the second generalization probe. Bill's baseline

demonstrated a low level, low variability, and no trend, with an average of 3.44 (range, one to five) instances of independent action-on-object play. During teaching sessions, there was an immediate decrease from three instances to one instance and an increasing trend, with an average of 4.66 (range, one to nine) instances. Bill's instances of independent action-on-object play decreased from nine to six instances during the generalization probe.

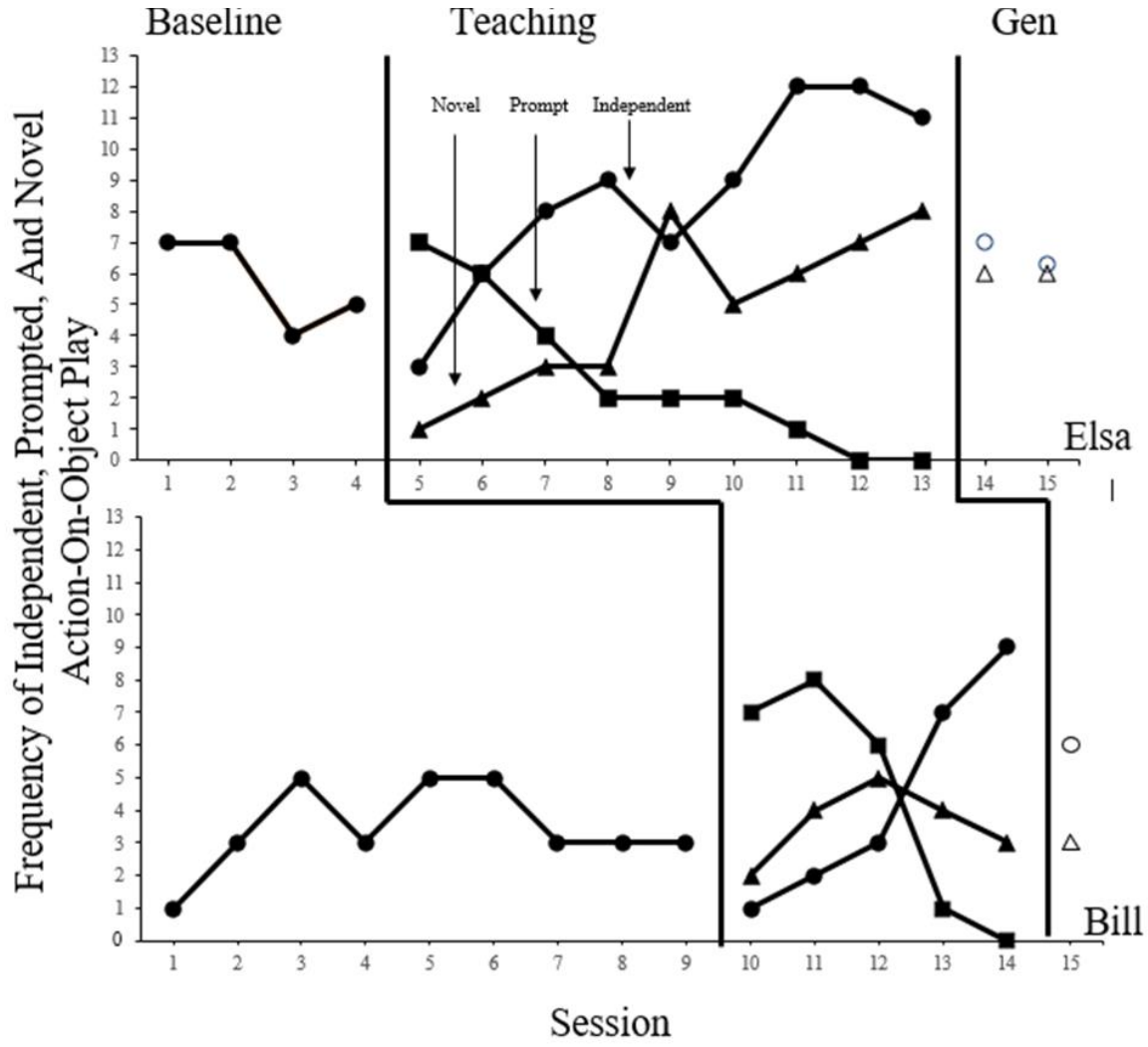

Figure 2. Frequency of independent, prompted, and novel action-on-object play across baseline, teaching, and generalization conditions. The closed circles represent independent responses, and the open circles represent generalization of independent responses. The closed squares represent prompted responses. The closed triangles represent novel responses, and the open triangles represent generalization of novel responses.

Prompted Action-on-Object Play

Figure 2 shows the frequency of prompted action-on-object play across baseline, teaching, and generalization for each participant. Elsa's baseline demonstrated a moderate level, moderate variability, and a slight decreasing trend, with an average of 5.75 (range, five to seven) instances of action-on-object play. During teaching sessions, there was an immediate increase in responding from five instances to seven instances and a decreasing trend, with

an average of 2.66 (range, zero to seven) instances. Bill's baseline demonstrated a low level, low variability, and no trend, with an average of 3.44 (range, one to five) instances of action-on-object play. During teaching sessions, there was an immediate increase in responding from three to seven instances, a moderate level, low variability, and a decreasing trend, with an average of 4.4 (range, zero to eight) instances of prompted action-on-object play.

Novel Action-on-Object Play

Figure 2 shows the frequency of novel action-on-object play across baseline, teaching, and generalization for each participant. Elsa's baseline demonstrated a moderate level, low variability, and a slight decreasing trend, with an average of 5.75 (range, five to seven) instances of action-on-object play. During teaching sessions, there was an immediate decrease in responding from five instances and an increasing trend, with an average of five (range, one to eight) instances of novel action-on-object play. Elsa's instances of novel action-on-object play decreased from eight instances to six instances and remained stable at six instances by the second generalization probe. Bill's baseline demonstrated a low level, low variability, and no trend, with an average of 3.44 (range, one to five) instances of action-on-object play. During teaching sessions, there was a slight decrease in responding from three instances to two instances, a low level, low variability, and an increasing trend that decreased by session 12, with an average of 3.6 (range, two to five) instances of novel action-on-object play. Bill's instances of novel action-on-object play remained at six instances during the generalization probe.

Independent Vocalizations

Figure 3 shows the frequency of independent vocalizations across baseline, teaching, and generalization for each participant. Elsa's baseline demonstrated a low level and a steady trend, with an average of 4.5 (range, three to one) instances of vocalizations. During teaching sessions, there was an immediate increase in responding from one instance to three instances and an increasing trend, with an average of 8.55 (range, three to 12) instances of independent vocalizations. Elsa's instances of independent responses decrease from 11 instances to seven instances and decreased to six instances by the second generalization probe. Bill's baseline demonstrated an increasing trend that stabilized at four instances, with an average of 3.66 (range, zero to six) instances of vocalizations. During teaching sessions, there was an immediate decrease in responding from four instances to zero instances and an increasing trend, with an average of 3.33 (range, zero to seven) instances of independent vocalizations. Bill's instances of independent vocalizations decreased from seven instances to three instances during the generalization probe.

Prompted Vocalizations

Figure 3 shows the frequency of prompted vocalizations across baseline, teaching, and generalization for each participant. Elsa's baseline demonstrated a low level and a steady trend, with an average of 4.5 (range, three to one) instances of vocalizations. During teaching sessions, there was an immediate increase in responding from one instance to seven instances and a decreasing trend, with an average of 2.66 (range, zero to seven) instances of prompted vocalizations. Bill's baseline demonstrated an increasing trend that stabilized at four instances, with an

average of 3.66 (range, zero to six) instances of vocalizations. During teaching, there was an immediate increase in responding from four instances to eight instances and a decreasing trend, with an average of 4.6 (range, zero to nine) instances of prompted vocalizations.

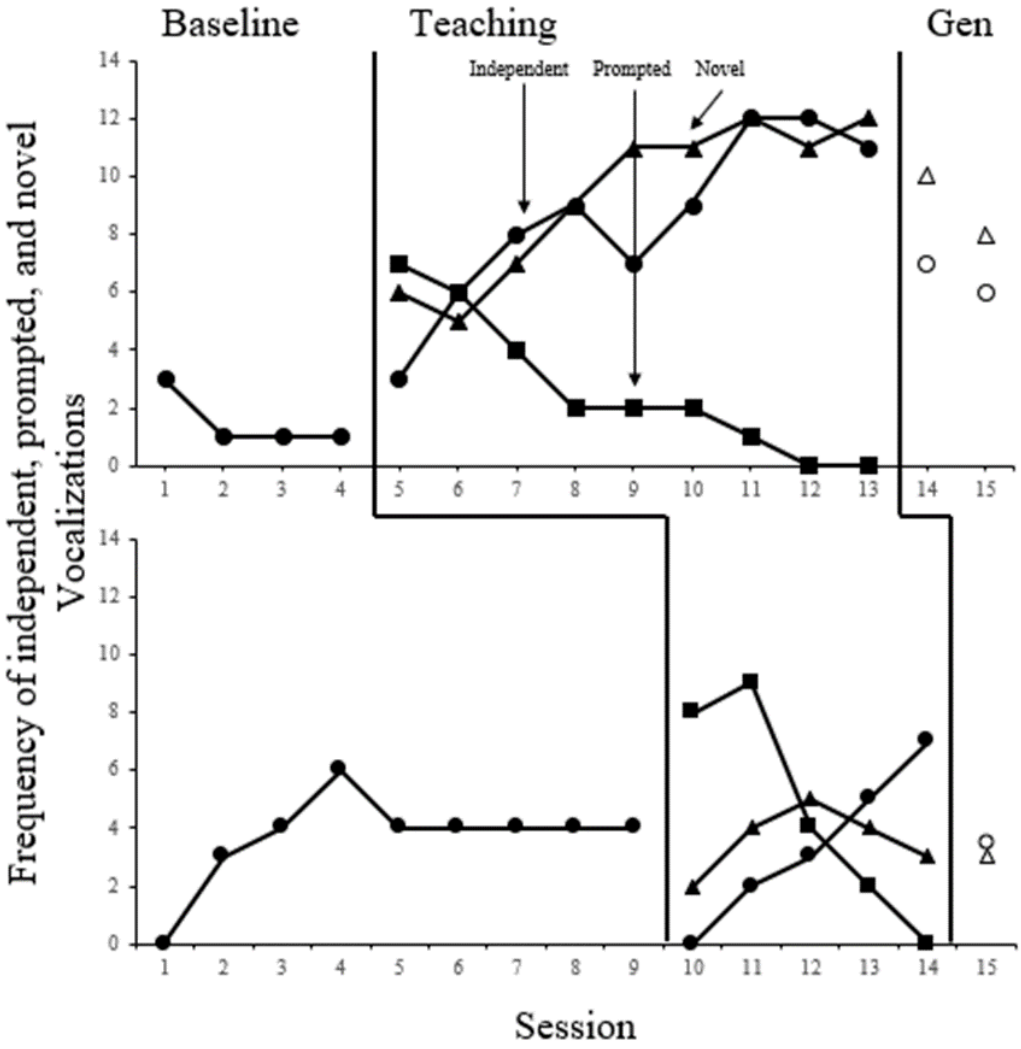

Figure 3. Frequency of independent, prompted, and novel vocalizations across baseline, teaching, and generalization for each participant. Closed circles represent independent vocalizations, and open circles represent generalization of independent vocalizations. Closed squares represent prompted vocalizations. Closed triangles represent novel vocalizations, and open triangles represent generalization of novel vocalizations.

Novel Vocalizations

Figure 3 shows the frequency of novel vocalizations across baseline, teaching, and generalization for each participant. Elsa's baseline demonstrated a low level and a steady trend, with an average of 4.5 (range, three to one) instances of vocalizations. During teaching, there was an immediate increase in responding from one instance to six instances, a moderate level, moderate variability, and an increasing trend that decreases at session 12, with an average of 9.33 (range, five to 12) instances of novel vocalizations. Elsa's instances of novel vocalizations

decreased from 12 to ten instances and ten to eight by the second generalization probe. Bill's baseline demonstrated an increasing trend that stabilized at four instances, with an average of 3.66 (range, zero to six) instances of vocalizations. During teaching sessions, there was an immediate decrease in responding from four instances to two instances, a low level, low variability, and no trend, with an average of 3.6 (range, two to five) instances of novel vocalizations. Bill's instances of novel vocalizations remained stable during the generalization probe.

Discussion and Conclusion

The results of the current study further support the use of apps to facilitate play skills (Hourcade, et al., 2013; Fletcher-Watson, et al., 2016). Both participants in the current study increased their independent action-on-object and verbalizations during gameplay. Unlike previous studies, the results included the measurement of novel action-on-object play and vocalizations during play. Both participants demonstrated an increase in novel responding, suggesting the potential for apps to facilitate novel play. Interestingly, for both participants, as independent and novel play increased, prompted play decreased, suggesting that with minimal teaching apps can facilitate play skills (Murdock et al., 2013). As children are using more app-based learning modalities during social experiences, the feasibility of incorporating teaching opportunities into leisure-based devices, such as apps, is promising.

As children move into more inclusive environments in their schools, the longer a child can engage in independent play has practical outcomes for both the therapist and the learner. While the learner is engaged in independent play, this can provide the opportunity for the therapist to prep or take a break. For the learner, increased independent play provides exposure to possible social skill development with increased opportunities for a peer to join or observing peers as they play. For both participants in the current study, duration of play increased immediately following teaching. The characters in the apps used could have functioned as a video model for play skills that were then used with the toy sets. For example, the app would demonstrate how to give the baby a bath, the learner would observe the model, and then perform the skill in the app. The opportunity to practice the skill in the app following the model could have facilitate the increase in duration of play, and contributes to the role of video models in the duration of play (Nikopoulos & Keenan, 2004).

The increase in duration of play could be also be accounted for through the current study's use of designing the environment to resemble the stimuli presented in the app. The toy sets resembled the toys presented in the app, with similar topographies and functions. The teaching opportunities presented in the app and altering the environment with the toy sets could have facilitated the learner generalizing the successful play in the app to the toy sets. This methodology suggests the toy sets supported the transfer from model to actual play. Future studies could investigate this further by modifying certain aspects of the toy sets, incorporating novel toy sets, and future researchers could investigate training on the toy sets to observe generalization effects to the toys presented in the app.

Independent play skills have been shown to decrease less dependence on teacher and aide reinforcement (Morrison

et al., 2002), which further mirrors requisites for access to regular education environments. Often, in school or clinical settings, situations present the learner with little opportunities for social reinforcement from either their peers, teachers, or therapist. Furthermore, access to independent leisure skills and self-reinforcement is an important component of overall quality of life. For both participants, independent and novel action-on-object play and vocalizations displayed an increasing trend. The increase in independent action-on-object play skills and verbalizations could be accounted for by the dense schedule of reinforcement embedded throughout the app. The learner is reinforced at a high rate for successful actions of game play. Each correct response was followed by lights and a variety of sound that served as reinforcers following each successful step of game play. The equivalence of stimuli presented in the game and the stimuli presented in the environment, these relations could have provided the opportunity for the transfer of the reinforcing properties of success in the game to the environment.

Both participants in the current study demonstrated deficits in play behavior with peers, and often played in stringent. For example, Elsa plays a birth cake game in the exact same way, every day. This can serve to decrease the motivation for peers to engage in play because the repetitive actions often becoming less reinforcing over time. Of important note, the instances of verbalizations concerning game play increased for both participants. This is important because verbalizing during play may provide the opportunity for social reinforcers and may serve to prompt peers to come over to the play area for group play. Future studies could test this by having the participant play around peers, verbalize during play, and record the number of instances and duration of group play. Previous research has shown that issues with generalization to novel settings following play interventions may be due to a lack of targeting peer play specifically. Children with ASD are more likely to engage in symbolic play when alone than with a peer (Barton & Wolery, 2008). This illustrates the importance of targeting peer play following mastery of a play scenario with a trainer. Examining the use of scripts adapted from gaming apps and introducing peers as agents of play would be an interesting continuation of this research.

Previous research has demonstrated the effectiveness of video modeling to teach play skills, but has also reported minimal novel play (Paterson & Arco, 2000) and generalization to novel settings (MacDonald et al., 2009). Unlike video modeling, the apps used in the current study included an active component to the video model. Furthermore, in video modeling the recording is typically in the same setting, with the same toys, and with a similar model, while the learner passively watches the video and then performs the skills presented. In the app, the animation style of the model, the environment, and the stimuli may have served as further multiple exemplars of the play that set the occasion for novel responding in that environment.

While both participants did not maintain treatment levels of responding when generalization was probed for, responding occurred at higher rates than baseline, demonstrating some experimental control. Both participants demonstrated preference for "Doc McStuffins: Baby Nursery," with Elsa choosing it in 87% sessions and Bill choosing it in 60% of sessions. In the remaining sessions, both participants chose to play "At Home with Daniel Tiger." Neither participant chose to play "Max & Ruby's Bunny Bake Off" in any baseline or training session. The motivation for other games may explain decreased duration, actions and verbalizations in generalization probes. Participants also had greater exposure to the scripted actions and verbalizations from the other two games.

It is possible increased exposure to the sequences of play in the game used for generalization may have led to increased frequency of action-on-objects and verbalizations without training.

Further research could examine the maintenance of this skill over time, if future apps the child encounters serve as scripts for toy play. Pretense behaviors have been shown by past research to be heavily context-dependent, with children more likely to engage in functional play when provided, for example, with a doll and spoon to feed her with. Substitution, a symbolic play behavior, is more likely to occur if a child has a doll and junk toys, like a doll and a stick (Barton & Wolery, 2008). In this research, only toys allowing for functional play were provided. Some pretense was required of participants to pretend there was food in an empty bowl or water in a plastic tub; however, future research could examine generalization to novel play materials including "junk toys" which require substitution behavior. Generalization effects of play skills to novel apps and toy sets is important. Similar to previous findings, only modest gains in generalization was observed (MacDonald et al., 2009). Future research could improve upon generalization effects by programming for less similar toys during teaching, utilize an interrupted chain procedure with one toy missing from the toy set to set the occasion for generalization of toys, liter the environment with more toys, train parents and others to implement the strategies in multiple settings.

While the findings of the current study are promising, there are several limitations worth noting. Other than during the IOA assessments, there were no other people in the environment than the participant and researcher and all sessions were conducted in the same setting. This may greatly impact the generality of these findings to novel environments and people. Future researchers could examine this by incorporating novel researchers during implementation and novel environments to engage in the corresponding toy sets. A second limitation to the current study is the lack of programmed opportunities for the participants to play with peers. Reciprocal play with peers is an important skill for success with social interactions, and future studies could incorporate peers through multi-player apps and toy sets that require multi-players in play. A third limitation is researcher prompting during participant play with the toy sets. While these were recorded as prompted, and independent and novel were discriminated, it is unclear if the app itself would have served as the sole teaching component. Future studies could remove research prompts throughout the study to identify if apps alone could produce similar findings as though observed in the current study. Despite these limitations, the findings of the current study do support the use of video modeling to teach play skills and fill in a much-needed gap on apps and gamification as teaching tool (Morford et al., 2014).

The use of technology in classrooms has increased over the past decade (Ploog et al., 2012; Clark et al., 2015), and technology will likely be a crucial part of interventions designed for children with ASD in the coming years. Early on, Skinner (1984) commented on the success of video games at programming reinforcement contingencies, pointing out that the outcome of a game does not matter, but players continue because of the continuous reinforcement accessed while playing. In a well-designed intervention, reinforcement should be as readily available as in a game (Skinner, 1984). Given the amount of time spent playing games by people of all ages, it would behoove behavior analysts to consider games an integral part of our cultural milieu, which may have a positive impact on how we design and implement contingency management programs (Morford et al., 2014). In Gamification, researchers take the 'building blocks' of games and implement them in real-world situations, often

to motivate specific behaviors within the gamified situation. Many authors see gamification as an innovative and promising concept, with application in various contexts (Werbach & Hunter, 2012).

Play is flexible and can be used across many settings. It sets up opportunities for children with autism spectrum disorder to have social and communicative interactions with peers and increases the likelihood that a child will access inclusive settings. When a child engages in play behaviors it creates opportunities to embed interventions for other skills and can lead to increases in social interaction, language and cognitive skills (Barton & Wolery, 2008). Today, preschoolers with ASD spend much of their leisure time engaging with tablets (Withey, 2016). Given the role of technology in the lives of today's young children, it is important that the use of this technology to assist in interventions for children with autism be explored. By training children with autism to use apps they play regularly as scripts to increase play behavior in the natural environment, interventionists can create future opportunities for functional play which may lead to the increased social opportunities play provides.

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Students' Opinions on COVID-19 and University Life

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Students' Opinions on COVID-19 and University Life

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Abstract

The purpose of the study was to determine how the university students who continue their education online after the universities shifted to distance education during the COVID-19 pandemic evaluate this process. The study was designed as a case study, one of the qualitative research methods. The study group was selected using the maximum variation sampling method among the university students studying at a public university in the 2020-2021 academic year in Turkey. Semi-structured interview form was used as data collection tool. It was found that the university students were struggling with academic, social, psychological, economic, and health problems during the pandemic period. In addition, in the study, the effect of being at the family home on the university education was also examined. While some participants considered it as an opportunity to stay at the family home for the reasons such as the support of the family and being more comfortable, some others considered it as negative due to the reasons such as the absence of a study environment, behaviors of the family members, family problems, and family pressure.

Introduction

Natural disasters, wars, pandemics, and famines have affected all humanity from the past to the present, deeply changing the lives of the beings and causing chaos across the world. Coronavirus (COVID-19), which has been circulating since December 2019, still continues to affect the world with the same threats and dangers. With the rapid spread of COVID-19 worldwide, the World Health Organization (WHO) declared it a pandemic on March 11, 2020 (WHO, 2020). The situation still remains serious and there are many cases globally in 2022. In order to prevent the spread of the virus across the world, several measures and prohibitions have been imposed based on the recommendations of the World Health Organization. Most countries have adopted some rules associated with social distancing, masks, and hygiene (Abidin, Alkaabi, & Razak, 2021; Cesljarev, Akerson, & Carter, 2021; Douali, Selmaoui, & Bouab, 2022; Ghosh, Jansz, & Ghosh, 2022; Johar, Amat, & Raja Ibrahim, 2021; Liu & Cheng, 2021; Onuralp, 2021; Paudyal, & Rana, 2021; Ye, 2021). Besides, various measures have been taken with the purpose of reducing the rate of spread of the virus. For example, social, cultural, and sports activities, many events, tournaments and festivals were temporarily suspended; national and international flights were canceled; and curfews were imposed. With these measures, COVID-19, which has made life stagnant in many parts of the world, has inevitably introduced a new world order.

The COVID-19 pandemic has negatively affected many areas of health, tourism, and economy, and social, cultural, and religious aspects of life. Educational institutions, which have many stakeholders, have been one of the most affected institutions after the healthcare sector. According to the data released by UNESCO in May 2020, 1.57 billion students' education lives, from kindergarten to higher education, were affected by the COVID-19 pandemic worldwide (UNESCO, 2020). This outbreak has brought an unprecedented change in the education system with quarantine, social distancing, and online education which were quickly implemented in most countries (Johnson, Veletsianos, and Seaman, 2020). Likewise the case in many countries, Turkey suspended all educational activities and later on launched the distance education in order to ensure social isolation and reduce the risk of transmission of the virus.

The COVID-19 outbreak has affected the entire education system and brought the higher education institutions to a new phase with distance education (Elumalai, Sankar, John, Menon, Algahtani, and Abumelha, 2020). Also in Turkey, the universities affiliated to the Council of Higher Education (CoHE) suspended education on March 16, 2020 and started to take some measures. In line with these measures, the higher education institutions took a decision to offer online courses and launched the implementation phase as of March 23, 2020 (CoHE, 2020). The universities continued their educational activities using synchronous or asynchronous methods on various platforms depending on their capacities. The universities, which completed the 2019-2020 academic year spring semester in this way, offered distance education also in the fall semester of the 2020-2021 academic year due to the increasing case numbers witnessed in the pandemic. However, this distance education was different from the education under normal conditions where all the infrastructure was being provided. Every teacher and learner with or without experience in distance education were suddenly faced with the fact of lecturing or taking lessons by the distance education method (Durak, Çankaya, and İzmirli, 2020). This introduced the concept "Emergency Distance Education" (Bozkurt, 2020) to the literature. Emergency distance education differs from distance education in that it is not an option, but a must; it offers temporary solutions in line with the current needs; and the efforts are dedicated to keep education running with available opportunities (Bozkurt, 2020). It is inevitable that emergency distance education, which is a necessity in times of a crisis, has some limitations.

With the advent of COVID-19, some problems associated with distance education started to emerge in higher education institutions. While some universities already had the infrastructure for synchronous or asynchronous education model, some others were deficient in infrastructure, and this increased the inequality among higher education institutions (Allen, Rowan, and Singh, 2020; Guangul, Suhail, Khalit, and Khidhir, 2020). The inequality experienced in the institutions also frequently manifested itself in the students. The pandemic brought difficulties to university students in their daily lives (August and Dapkewicz, 2020) as well as in their university lives (Karadağ and Yücel, 2020; Sahu, 2020; Turan and Gürol, 2020). The focal point of this study is to identify the problems faced by the university students in this process and to come up with suggestions to eliminate these problems.

To this end, the purpose of the study was to determine how the university students who continue their education online after the universities shifted to distance education during the COVID-19 pandemic evaluate this process. It was aimed to reveal the problems faced by the university students in this process and how they experienced the

process. This study sought answers to the following questions:

- According to the university students' opinions, how did the pandemic affect the university life?
- According to the university students' opinions, what are the problems encountered in the distance education practices?
- What are the university students' opinions about the effect of being at home with their families on their university education?

Method

Research Model

The study was designed as a case study, one of the qualitative research methods. Case study is a research method used to find answers to the questions "how" and "why" when the researcher has no control over the variables in a current situation (Yin, 2003). In this study, the case study was preferred because the university students' experiences were being evaluated during the COVID-19 pandemic period when they were receiving education at home.

Participants

The study group was selected using the maximum variation sampling method among the university students studying at a public university in the 2020-2021 academic year in Turkey. 20 students from different faculties, schools, and grades were included in the study group. The study was limited in that only the university students with internet access participated in the study. Personal information about the participants is given in Table 1.

Table 1. The Demographic Information of the Participants

Participant	Gender	Faculty	Grade Level	Participant	Gender	Faculty	Grade Level
P1	Female	Faculty of Education	1	**P11**	Male	Faculty of Arts and Sciences	3
P2	Male	Faculty of Education	2	**P12**	Female	Health Sciences Faculty	4
P3	Female	Vocational High School	2	**P13**	Female	Vocational High School	2
P4	Male	Vocational High School	2	**P14**	Male	Faculty of Education	3
P5	Male	Faculty of Economics and Administrative Sciences	3	**P15**	Female	Health Sciences Faculty	4
P6	Female	Faculty of Arts and Sciences	4	**P16**	Female	Theology Faculty	2
P7	Male	Faculty of Education	4	**P17**	Female	Faculty of Economics and Administrative Sciences	2
P8	Male	Faculty of Education	4	**P18**	Male	Theology Faculty	2
P9	Female	Vocational High School	1	**P19**	Female	Health Sciences Faculty	3
P10	Male	Faculty of Arts and Sciences	1	**P20**	Female	Faculty of Arts and Sciences	1

Data Collection

Semi-structured interview form was used as data collection tool. The interview form consists of two parts: personal information about the participants and the questions about the problems they faced during the pandemic. In the personal information part, there are some questions about the participants' gender, department, grade level, personal computer, and internet.

The interview form was prepared by the researcher. The informal interviews the researcher had with the university students in the courses formed the basis for the preparation of the interview questions. In this context, 4 questions and 2 probe questions were prepared. After the interview questions were prepared, an academician who has studies on distance education was asked to express opinion on the questions. In line with the expert opinion, the questions in the form of "positively/negatively affected" were changed to "how it affected" with the justification that the former might cause the participants to provide biased answers. Some of the questions in the form are as follows:
How has your university life been affected during the pandemic? Please explain.
How did it affect you to attend the university courses from your family home during the COVID-19? Please explain.

After the interview form was finalized, a pilot study was carried out with 2 juniors studying at the department of primary school teaching, who were receiving a course from the researcher, in order to measure the comprehensibility of the questions, and since no problems were encountered, the study proceeded to the main implementation phase.

The data were collected between November and December 2020. Due to the COVID-19, the interviews were conducted over Skype, rather than face-to-face, as the universities shifted to distance education. The researcher contacted the faculty members from different units of the university and asked them to identify the students who would voluntarily participate in the study. The contact information of the students who accepted to participate in the interview was obtained and communication was established with these students individually. Appointments were arranged for the participants to conduct the interview after informing them about the research and the interview process. The interviews lasted about 15-20 minutes. The interviews were recorded on a program and later on they were transcribed, and the analysis process was started.

Data Analysis

MAXQDA-20 software package was used in the analysis of qualitative data. After the interviews were transcribed, they were uploaded to the MAXQDA in Word format. Descriptive analysis technique was used in the analysis of the data. Descriptive analysis is used to identify what the participants said about the research problem or what kind of results were found in relation to it (Yıldırım and Şimşek, 2018). Codes and categories were created based on the participants' answers to the questions. The participants expressed more than one problem affecting them in their opinions. Therefore, in some categories, the number of problems expressed by the participants was higher than the number of participants.

The study was tested in terms of validity and reliability. In order to ensure the internal validity of the study, the interviews carried out online were shared with the participants after they were transcribed, and they were asked to confirm that the shared contents were their own statements. In order to ensure the external validity, the participants' opinions were frequently referred to in the results section, and all the details about the data collection process were explained in the data collection and analysis section.

Results

In this part of the study, the data obtained from the university students were analyzed and supported with their opinions. In line with the first problem of the research, the participants were asked the following question: "According to your opinion, how did the pandemic affect the university life?" The data obtained from the students are shown in Figure 1.

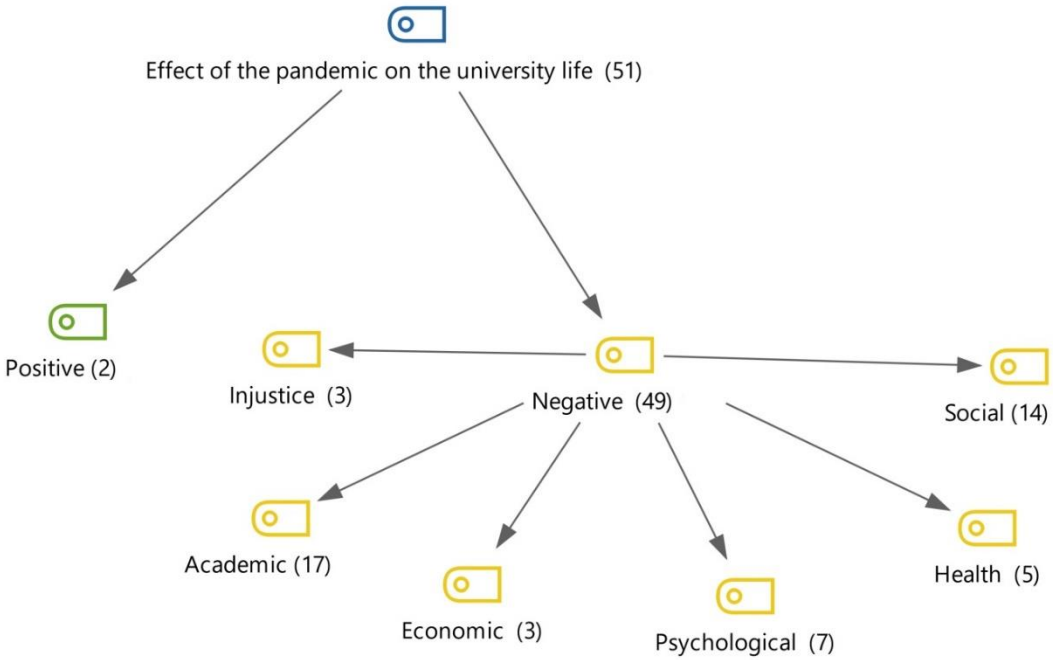

Figure 1. The Effect of the Pandemic on the University Life according to the University Students' Opinions

Figure 1 shows the codes and categories for the effects of the pandemic on the students' university lives. The majority of the participants stated that the pandemic period affected their university education negatively (18 participants) whereas 2 participants stated that it affected their university lives positively. The Participant K2, one of the participants who evaluated the process as positive and saw the situation as an opportunity to attend courses, said, *"I am currently studying at a second university and working at the same time. Under normal circumstances, I worry about getting time off from work and catching up with the courses, but now I can attend my classes online at my workplace."*

The negative effects of the pandemic period on the university education consisted of the following codes:

academic (17), social (14), psychological (7), health (5), economic (3), and injustice (3). The code "academic" was the most frequently referred one. In other words, the majority of the participants reported that the pandemic period negatively affected their university life in academic terms. The participant K3 expressed her/his opinion as follows: *"After the pandemic, I think I never received a quality education. One semester passed with homework and the other semester was full of online courses as if it was automated, but no avail... "*The participant K4 stated that *"I have some vocational courses and I used to have difficulty in understanding them even in the face-to-face education, now you can easily understand how difficult they are in online education."* The participant K14 emphasized the negative aspects of this period as follows: "*I cannot get my books due to the pandemic, my cargo packages arrive too late, so I have to be content with the information the instructors provide.*" The participant K7 underlined that she/he was negatively affected in academic terms and said, "*This year I will graduate and become a teacher, but I see the last year as a lost year. No internship, no practice... I feel very inadequate as a teacher candidate. "*

Secondly, the participants reported that the pandemic period affected their university lives socially. One of the participants (K1) stated that *"I don't even know my friends who are in the same class right now, there is no interaction, no sharing."* Another participant (K14) said, "*We live a home-based life, I don't even meet anyone but my family members, let alone traveling."*

The participant K10, who emphasized that the pandemic period affected their university lives psychologically, said,

> "*In the first year of university, we had to attend courses from home... this is a psychological breakdown, a contradiction. You are a university student but you are not at university, you are with your parents. I even became a subject of mockery in the family."*

The participants who perceived this period as an injustice emphasized the injustice and inequality of opportunity in the evaluation process. One of the participants stated, "*I consider this period as negative because I think there will be cheating in online exams, so it cannot be a fair exam period.*" One of the participants who emphasized the inequality of opportunity said, *"I do not find this period fair for me who does not have a computer or who live in a place where there is an unstable internet connection. I am not under the same conditions as people who go on the same road as me."*

Based on the participants' opinions, it can be said that the pandemic period mostly affected the university life negatively and the negative aspects manifested themselves more in academic and social fields.

In the study, the participants were asked whether they had any problems during the distance education period. They all reported that they encountered some problems in this period. In line with the second problem of the research, the participants were asked the following question: "According to your opinion, what are the problems encountered in the distance education practices?" Figure 2 shows the codes for the answers to this question.

The problems experienced in the distance education consisted of the following codes: not understanding the

lessons (18), internet connection problems (14), technical problems (13), timing (9) and lack of materials (6). The majority of the participants frequently mentioned about "not understanding the lessons" (18). The participant K11 asserted that the lessons taught through distance education were not efficient and said, "*It is not efficient because the instructor lectures for hours and we are in the position of listeners, we do not do anything else. So there is no permanent learning."* The participant K20, who were studying at a mathematics intensive department, said the following about failure to understand the lessons: "*I can understand the verbal-based lessons by reading the notes, I can consolidate it completely, but I have difficulty understanding the subject 'mathematical proofs'."* On the other hand, the participant K7 expressed her/his opinion as follows: "*Education should take place with interactive materials. The lessons where only the teacher speaks are boring. Besides, we sit in front of the screen for hours and this should also be taken into consideration."*

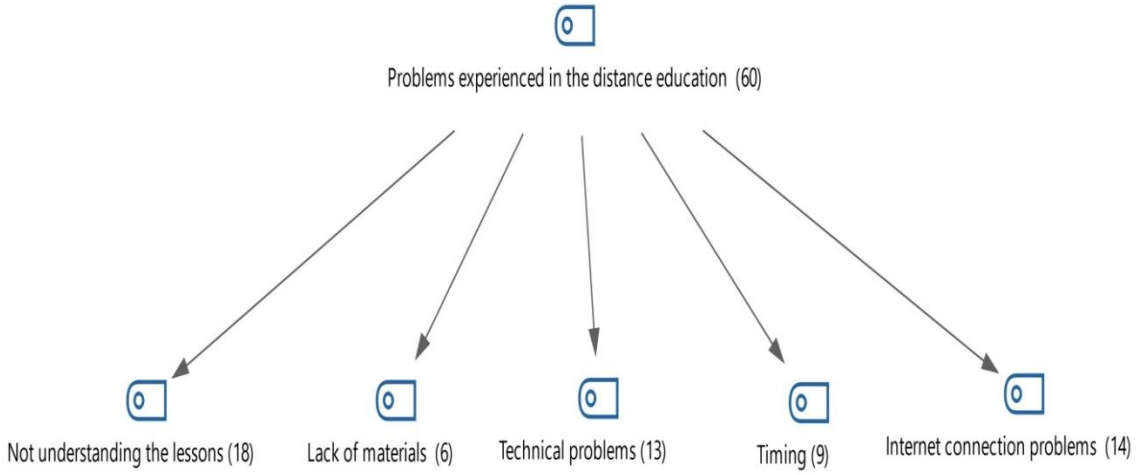

Figure 2. The Problems experienced by the University Students in the Distance Education

The codes "internet connection problems (14)" and "technical problems (13)" were also among the codes frequently repeated by the participants. It was found that the students had some problems associated with the Internet due to their place of residence or financial difficulties. The participants expressed the following opinions in this regard:

> *"I experience some problems about the Internet due to the district I live in, I can access the internet in certain parts of the neighborhood, and I cannot attend classes much because I do not go out regularly due to the pandemic (K10)"*
>
> *"Live lessons really drain my internet data package too much and I cannot renew my internet data package regularly due to my financial situation. (K4)"*

The problem with the distance education infrastructure experienced by the university students was referred to as "technical problems." The participants expressed the following opinions about the technical problems:

> *"During the course, we are experiencing many problems such as not being able to hear the teacher's voice, the video freezing, or the cancellation of the lesson due to the platform. (K20)"*
>
> *"Sometimes while I'm attending the lesson the system disconnects me and I have trouble in connecting again. Our teachers' voices can be heard interruptedly. This makes it hard to understand the lesson. (K11)"*

Based on these opinions, it can be said that the participants had some problems such as being disconnected from the lesson and receiving unclear sounds and videos due to the distance education infrastructure. It was found that the participants experienced some problems associated with the lack of materials and timing in distance education. Participants who did not have materials such as computers and tablets stated that they had problems in participating in online lessons.

One of the participants (K4) explained this situation as follows: *"I don't have a personal computer, my department is a PC-supported department, I fall behind in most practices in my department. (K4)"* Another participant (K10) said, "*We are 4 siblings at home and have a desktop computer, we all take online courses, I can attend the courses only when it is my turn for the computer."*

One of the participants (K15) who stated that she/he had problems with timing said, *"Our lessons are held consecutively and without a break. It is very difficult for me to focus on the lessons on the phone screen."* Another participant (K6) said, *"Some of our lecturers plan their lessons arbitrarily at the times they want, which causes conflicts with other lessons.*" The participant K13, one of the participants who found the duration of lessons short, expressed this situation as follows: *"The lessons are very short, when we move on to the main subject, the lesson ends and the subjects remain very superficial."* K13). Based on the participants' opinions, it can be said that the internet problems, technical problems, lack of materials, timing problems related to distance education caused the students to not get efficiency from the distance education and to comprehend the lessons less.

Finally, the study focused on the question "What are the university students' opinions about the effect of being at home with their families on their university education?" The Figure 3 shows the codes for this question.

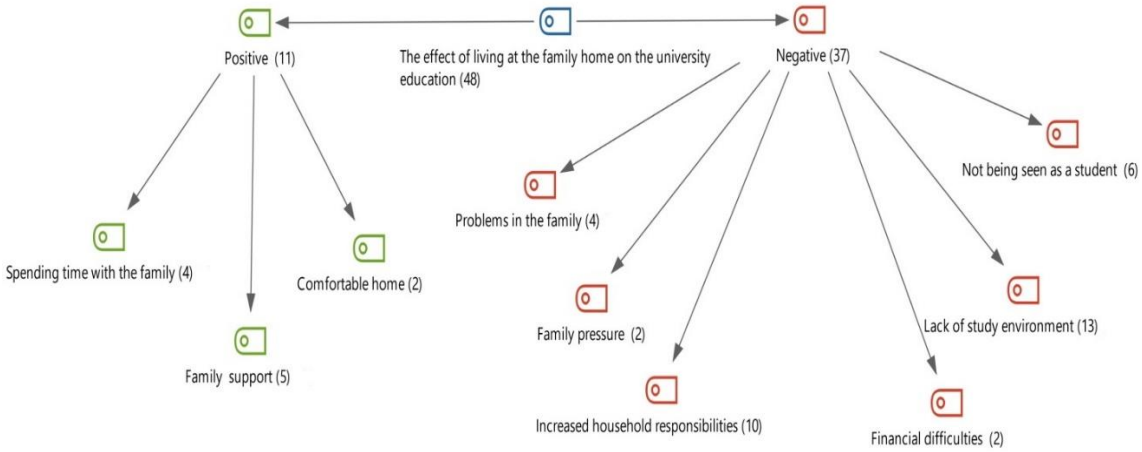

Figure 3. The Effect of Living at the Family Home on the University Education

When the Figure 3 is examined, it is seen that the university students evaluated the situation "living at the family home" in two categories, positive and negative. 7 participants who found it positive to continue their university education at their family homes put forward the following codes to support their argument: the support of the family (5), enjoying spending time with the family (4), and the family atmosphere being comfortable (2). The participant K7 emphasized that their families supported them in adapting to distance education and creating a

suitable environment with the pandemic and said, *"I have a family that provides me with all opportunities for my lessons and success. They recognize my right to make a choice and my right to speak and care about my thoughts."* A participant who emphasized the comfort of the family environment stated, *"I feel more comfortable, healthier, and safer at my family home"* (K16). The participant K3 who saw distance education as an opportunity to spend more time with her/his family during the pandemic expressed her/his opinion as follows: *"I can say that the pandemic worked for me because I am one of those who like to spend time at home and are fond of family."*

Some of the participants considered living with the family as negative and their number was higher than that of those who considered it as positive. 13 participants stated that being at their family homes negatively affected their university lives. The participants detailed these negative situations as follows: lack of study environment (13), increase in the responsibilities associated with home (10), not being seen as a student (6), problems in the family (4), financial difficulties (2), and family pressure (2). The students who participated in the interview considered the lack of study environment at home as a problem. The participant K2 said the following about this problem: "*I have 3 siblings at home, one of them is disabled, so I cannot prevent the noise. Since we do not have private rooms, we live in the same room together. This affects me negatively."* The participant K9 said, about the home environment, *"Guests come to our home all the time, and I cannot study while they are there."*

It is inevitable that being in a home environment also increases the responsibilities such as helping in housework. 10 participants emphasized that their university lives were negatively affected by the increase in the housework responsibilities at the family home. The participant K13 expressed her/his criticism about this issue and said, *"For example, I have a course that day, but my mother makes me clean the house thoroughly. I feel like a housewife."* It was noteworthy that all the participants who expressed opinion about this code were women.

The code "not being treated as a student" was mentioned by some of the participants. The participants expressed the following opinions in this regard:

> *"They behave as if there is no school and I came to the family home on vacation." (K17)*
>
> *"The people at home don't even see me as a student, let alone seeing as a university student! They don't take me seriously." (K9)*

Based on the participants' opinions, it can be said that the students were negatively affected by the attitudes of their families towards them, their families not seeing them as students, and not being able to create an environment where they can study.

Another factor that negatively affected the students who continued their education at their family homes was the quarrels and problems experienced within the family. One of the participants (K14) said the following about this subject, *"It is not possible to study at university from home. I constantly find myself in the middle of family problems. They quarrel, fight due to small details, it is hard to focus on the lesson, at least we were mentally comfortable in the dormitory."* Another notable result was about the family pressure. The participant K10 explained her/his situation in this regards as follows: *"I am tired of being told to study even though I study. I feel under pressure."*

Based on the students' opinions, it was found that the closure of the schools and the transition to distance education due to the pandemic prevented them from experiencing the university life socially and academically; the efficiency of the education decreased in the distance education due to the technical difficulties, time problems, and lack of materials; and the students experienced several problems associated with staying at their family homes.

Conclusion and Discussion

In this study, the universities' transition to online education due to the COVID-19 and the students' continuing their education at their family homes were discussed and the problems experienced by the students in this period were evaluated. In this part of the study, the results will be discussed by comparing them with those in the literature. In this research, the effect of the pandemic on the students' university education was discussed. According to the majority of the participants' opinions, it was found that the pandemic negatively affected their university lives. In general, the participants were negatively affected in academic terms. Also in the studies carried out by Afşar and Büyükdoğan (2020); Bayram, Peker, Aka, and Vural (2019); Altun-Ekiz (2020); Kürtüncü and Kurt (2020) and Altuntaş-Yılmaz (2020), it was found that the university students found the theoretical and applied courses inadequate due to the reasons such as the lack of opportunities for questions and answers in distance education and the insufficient technical infrastructure. Especially, it is seen as a deficiency that students pass the courses only by doing homework, the lessons are monotonous, and the applied courses that require skills cannot be carried out. For the students who have difficulty in understanding even the lessons taught face-to-face in the classroom interactively, it is inevitable to experience some academic difficulties in online education where time and interaction are limited. In order to ensure academic success in distance education, it is considered important to have the required technological infrastructure, design the program effectively, train the instructors in distance education, and adapt the course curriculum to distance education (Barr and Miller, 2013). With the advent of the pandemic which created a chaos, universities' transition to emergency distance education pushed these preparations and programs into the background. Although the emergency distance education made it possible to continue the education, it brought many problems in its wake. This period deeply affected the instructors and learners who were typically used to face-to-face instruction in classrooms (Zhang, Wang, Yang, and Wang, 2020) Moreover, distance education created unprecedented challenges in the courses requiring practice in laboratories (Cooper and Tschobotko, 2020). This result reveals the fact that there is a need for developing alternative methods for practice-oriented courses in distance education.

According to the university students' opinions, the pandemic also affected the students' university life in terms of socialization. Most of the participants stated that the pandemic negatively affected their university lives in social terms. Education, especially the university education, provides opportunities for students in terms of not only academic but also social development. With the pandemic period when some quarantine and social distancing rules were imposed, the university students had to be locked down in their homes. This lock down prevented the students from being together with their peers and participating in social, cultural, and sports activities. Previous studies also emphasized the social effects of the pandemic (Afşar and Büyükdoğan, 2020; Aktaş, Büyüktaş, Gülle, and Yıldız, 2020; August and Dapkewicz, 2020; Üçer, 2020). Another result was that the participants were psychologically affected by the situation. During the COVID-19 period, staying in the same environment for a

long time, doing limited and similar activities also affected individuals psychologically. Moreover, the uncertainty about the pandemic, health-related concerns and fears further increase this psychological effect (August and Dapkewicz, 2020; Cao et al., 2020; Demir, 2020; Çetin and Anuk, 2020; Tutku, Ilıman, and Dönmez, 2020; Wang Cheng, Yue, and McAleer, 2020).

Another remarkable result of the study was the students' emphasis that the pandemic created an inequality in education and evaluation. The way the education was evaluated and cheating in online exams were considered by the students as an injustice in distance education. On the other hand, evaluating the students who do not have the financial means and are not under the same conditions using the same system increases this injustice. The emergency distance education practices designed through internet access and computers have made the digital divide in the society clearer and caused the gap between those who have and do not have an internet access and compute to widen further (Bozkurt, 2020). The studies and reports in the literature also emphasize that the pandemic increased the inequality (Buluk and Eşitti, 2020; Giannini, Jenkins, and Saavedra, 2020; Hammond et al., 2020; Karadağ and Yücel, 2020; Keskin and Kaya, 2020; Kürtüncü and Kurt, 2020; Reimers and Schleicher, 2020; UNESCO, 2020; Patel, 2020; Uwezo, 2020; Wang et al., 2020; Yang, 2020; Zhang vd, 2020). As a result, it was found that the university students were struggling with academic, social, psychological, economic, and health problems during the pandemic period.

This study discussed the problems experienced by the university students in distance education practices. According to the university students' opinions, the problems associated with the distance education were identified as follows: not understanding the lessons, limited internet access, technical problems, limited time, and lack of materials. With the advent of the pandemic, the higher education institutions' rapid transition to the distance education has rendered it inevitable to experience some technical problems. However, the uncertainty about how long this situation will continue should be seen as an opportunity for the higher education institutions to establish a sound technical infrastructure. Another result was that the university students had some problems with timing in the distance education. They reported that the lessons were shorter than normal and, therefore, the subjects were explained more quickly. Although the distance education creates a learning environment independent of time and place (Arbaugh, 2000), it is also a problem that the time allocated for the lessons is not sufficient and the lessons are scheduled in an unplanned way.

In the study, the effect of being at the family home on the university education was also examined. While some participants considered it as an opportunity to stay at the family home for the reasons such as the support of the family and being more comfortable, some others considered it as negative due to the reasons such as the absence of a study environment, behaviors of the family members, family problems, and family pressure. The most frequently mentioned problem associated with staying with the family was the lack of a study environment. Most of the participants stated that they had some difficulties in following the lessons due to the high number of family members and the lack of a private room and computer. In addition, the participants emphasized the increase in housework responsibilities. It was found that the participants, especially the females, assumed more responsibilities in housework, which was an obstacle to their education. This result also reveals the problem of equality in education.

In general, in this study, the effects of receiving distance education and staying at the family homes during the pandemic on the university students were examined and it was found that the students considered this period as negative in academic, social and psychological terms. The following recommendations were developed in line with the results of the study. During the pandemic period when we have experienced great changes in our lives, the field of education has also faced a great change and transformation. In order to realize this change and transformation effectively, it is recommended that all the higher education institutions complete the ongoing works for establishing a distance education infrastructure.

In line with the principle of equality in education, the disadvantaged groups can be identified and provided with an internet and hardware support. In order not to interrupt the applied courses, an infrastructure can be established to offer these courses effectively in online environments. Sociality was one of the factors that affected the university students the most. Considering the uncertainty about the pandemic period, online platforms can help the university students, especially the freshmen, socialize and fraternize.

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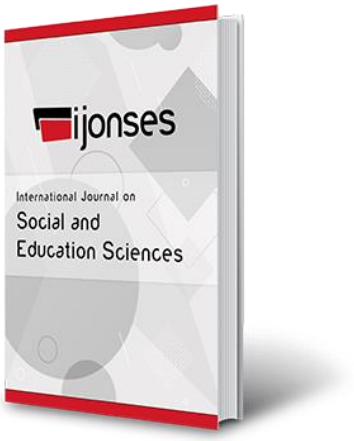

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Promoting Learner Autonomy through Tandem Learning in a Japanese ESL Context

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Abstract

Computer-mediated form of language learning provides the opportunity to engage in meaningful and authentic interaction in the target language. Through interaction and collaboration, learners are said to develop a sense of autonomy (Little, 2001). Studies from the literature show that Japanese learners do not lack the capacity for self-directed learning but rather, the language learning environment that has been created by most Japanese institutions has implicitly discouraged learners from becoming autonomous learners (Holden & Usuki, 1999; MEXT, 2013). This study seeks to explore how tandem learning could foster an autonomous learning environment in an EFL classroom in Japan. It will describe learners' perception of the Facebook Project, and whether it has helped this group of learners assume more responsibility for the learning process. Findings show that the project enhanced intrinsic motivation, promoted learner reflection, and students took the initiative to reciprocate with their tandem partners' language needs. Implications of the study suggest that learners need to be involved in the design of learning environments and adequate levels of technological proficiency are necessary to prepare learners for more self-directed learning.

Introduction

The impact of the Internet on language learning in the context of higher education has grown exponentially in the last twenty years. The rapid development of web 2.0 tools has been seen as important to language learning as they are well suited to the acquisition of foreign languages and hybrid environments as it fosters both interaction and collaboration (Lomicka & Lord, 2009). In the context of Japanese higher education, the Ministry of Education, Health, and Sciences (MEXT) have been commissioning institutions to raise learners' pragmatic awareness and improve their critical digital literacy skills (MEXT, 2018). This is in response to the increasing number of student populations who have access to a wide variety of mobile applications, digital technologies, and networking opportunities. Subsequently, the sudden move for institutions to adopt digital technologies, due in part to the impact of the pandemic, has forced many Japanese institutions to further explore the potential benefits of digital media technologies such as web 2.0 tools to provide more flexibility in promoting better participation and capturing and maintaining the interest of students in face-to-face, online or hybrid environments. This provides them with new incentives, and opportunities to interact with people from across the globe. Alongside the adoption of digital technology, the MEXT directive also emphasizes autonomous learning, thus many tertiary institutions

aim to develop it in students, particularly in students studying foreign languages. It is generally seen that having the volition for language learning is a necessary skill to achieve proficiency in the target language. MEXT (2013) requires that educational institutions incorporate the development and motivation of students to become more autonomous language learners in their curricula. Consequently, MEXT (2013) calls for more teacher-centered instruction and for language classrooms to focus on teaching communicative competence to enable students to solve problems independently and become more adaptable to social changes.

There is often a misconception that Japanese learners are less autonomous compared to learners from different cultural backgrounds. However, studies have shown that Japanese learners are not less autonomous than students of different nationalities (Holden &Usuki, 1999; MEXT, 2013). Findings from studies have revealed that learner-dependency was implicitly created by behavioral standards set by Japanese education institutions which do not nurture the capacity to develop autonomy which is particularly prevalent in elementary and secondary schools where there is a heavy focus on test scores (Holden & Usuki, 1999). Nevertheless, Benson (2011), claims that language learners have the natural ability to assume responsibility for their learning and any learner who lacks autonomy is capable of developing it.

Research has shown that social networking sites (SNS) offer new opportunities to language learners (Bax, 2011; Back, 2013; Blattner & Fiori, 2011; Reinhardt, 2019; Vandergrift, 2015). The interactive nature of these sites offers plenty of opportunities to interact with other speakers of the target language in a more authentic setting as learners have the chance to use the target language in informal and realistic ways, rather than in the structured nature of classroom teaching and learning. The flexible nature of online spaces also means that learners have the chance to access resources to the target language and engage in learning anywhere at any time. Thus, sharing content and information through online networks promotes participation and collaboration through interaction, engagement, and management of learning. To guarantee that students can benefit from participating in social networking spaces from a pedagogical standpoint, learning opportunities need to be created by educators where students have the chance to develop L2, facilitate engagement in the foreign language, increase motivation and exercise their autonomy to manage to learn at their own pace and style (Reinhardt, 2018; Schwienhorst, 2003; Reinders, 2010). Despite the language learning benefits that SNS afford, insights into how learners behave and exercise autonomy in digital spaces such as social networking sites are scarce. Most published work is focused on learning outcomes and the preference for how to design tasks rather than how learners engage and interact on these sites (Reinhardt, 2019; Blattner & Fiori, 2011; Peeters & Ludwig, 2017). This study described in this paper sought to understand the nature of a group of learners' participation in a tandem learning activity carried out on the social media platform, Facebook. The study focused on how self-directed learning was promoted. Analysis into ways of how learners interact in online spaces can inform researchers and language teachers on how to better design tasks to promote more specific learning objectives, better engage learners and develop learner agency and digital literacy which are said to go hand in hand with L2 development (Peeters, 2015). The following two questions related to the development of learner autonomy using social networking sites in pedagogy were explored:

1. What autonomous learning qualities were promoted by this project?
2. What are the students' perceptions of the Facebook project?

A Definition of Autonomy

In the field of foreign language education, it has been argued that the development of autonomy in language learning, and autonomy in language use are two sides of the same coin (Little, 2004). Holec (1981) defined autonomy as "the ability to take charge of one's own learning" (p. 3). He describes the physical attributes of an autonomous learner in that the learner is said to assume responsibility for all aspects of learning. Thus, an autonomous learner according to Holec (Little, 2004) determines what the content of learning is, discovers methods and techniques of how to learn, monitors the progression of the learning process, and assesses what has been acquired. Nevertheless, Little's (1991) view describes autonomy from a psychological perspective where one has the mental capacity, such as the initiative, to learn something of interest, reflect on this learning, and make decisions as to the direction of learning. In summary, both Holec and Little describe an autonomous learner as one who takes the initiative and responsibility to carry out the learning process independently.

The Role of the Zone of Proximal Development

Learner autonomy has often been widely discussed to be associated with the socio-cultural theory of learning where higher-order functions such as retention, development of ideas, and voluntary attentiveness are internalized through social interactions (Little, 2007). One of the central concepts of this framework is Vygotsky's notion of zone of proximal development (ZPD), which professes the dialogic dynamic between a novice-expert relationship that is said to be characteristic of the natural development for language acquisition (Little, 2004). ZPD emphasizes the essence of learning by doing. It acknowledges the role of expertise in guiding the learning process and recognizes autonomy in a sense of being able to do something independently as a goal of learning (Little, 2004).

According to the theory, novice learners move along the ZPD from constant interaction with peers and seeking assistance from experts around them, eventually taking them from dependency to more self-regulation and autonomy through the new language. In other words, learning does not take place in isolation but rather through social collaboration and interaction, hence 'learning' takes place through the action of 'doing' (Lantolf & Thorne, 2007; Little, 2004). Consequently, interaction and collaboration with expert peers and teachers, serve to encourage learners to be more consciously aware of learning by using the target language as the medium to interact and collaborate for task performance, and for undertaking meta-cognitive and meta-linguistic reflection to develop target language proficiency which is integral to autonomy.

Tandem Learning

From a pedagogical perspective, one of the ways in which the principles of learner autonomy and its social-interactive nature can be fostered is through tandem learning. Central to the practice of tandem learning is the principles of reciprocity and autonomy. Under the principle of reciprocity, learners have reciprocal dependence and mutual support for each other as they interact in tandem. The second important principle of tandem learning is the notion of autonomy. The learner is not only responsible for one's own learning but also that of their partner. Thus, they determine what and when they want to learn independently and they can only expect the same level of

help and support from their partner according to what they provide and ask for (Little & Brammerts, 1996). According to Little and Brammerts (1996), in tandem learning, learners are cast into the roles of novice and expert simultaneously by being responsible for the other's learning through interactive and collaborative practice. Thus, learners are required to use the target language to collaborate and contribute to the interaction equally.

Furthermore, through interaction, and collaboration learners develop a sense of autonomy as they gain more practice and confidence in the target language. As tandem partners develop by enacting the roles of learner and competent speaker, so does the capacity to take more control of the learning process on their own (Little and Brammerts, 1996). Thus, autonomy grows as learners move through the process of collaborative practice, they become interdependent and responsible not only for their own learning but also for their partner.

Research in tandem learning through online collaboration on social networking sites has been shown in the literature to afford the promotion of learner autonomy in language learners. The social-interactive and collaborative nature of social networking sites have been seen as part of recent foreign language pedagogy not just for improving language proficiency but also as a tool for developing lifelong learning skills such as autonomy. McBride's study (2009) observed that as students develop communicative skills in online spaces, they commenced connecting more with other learners which subsequently leads to more opportunities to exercise autonomy. Accordingly, McBride described that the constant discourse of posting and responding through authentic interaction leads to unique interactivity and engagement that incentivized learners to become more involved in the learning process. This is similar to Peeters and Ludwig's (2017) findings in their analysis of peer collaboration in two networking case studies from a Facebook project. They concluded that taking part in the authentic construction of meaning and developing a sense of social presence promoted learners to apply metacognitive, social, and effective strategies to learning.

Asynchronous Tandem Efforts

Asynchronous online studies have also been shown to be beneficial in assisting students to become autonomous language learners. A study by Sadler and Dooley (2016) illustrated that the performative process of tele-collaborative learning involved learners with mutual objectives to co-produce and share knowledge through a/synchronous communication technology. Compared to synchronous or real-time face-to-face interaction, asynchronous chats are regarded as less linguistically challenging as more statements are likely to be produced when learners are given the time and flexibility to think and consider language output.

Moreover, Ciftci and Savas' (2017) findings have discovered that learners were more likely to produce linguistically simple and short statements when interacting through asynchronous means compared to longer and more linguistically formal statements when using asynchronous tools. In addition, Avgousti's (2018) investigation of the use of asynchronous chats pointed out that they are more favored by learners as it gives them the flexibility and convenience to examine the problem and craft a response. Therefore, it can be argued that the use of asynchronous CMC takes away the pressure of having to formulate instant responses which may result in better quality and quantity of language output.

Method

The Facebook Project

The Facebook project described in this paper originated in the desire to provide learners with more authentic interaction in the target language. The project took place over the course of six weeks between an Australian and Japanese university. The timing was difficult to find due to clashes in academic schedules between the two universities. It was ultimately decided that the project would begin at the start of the Spring semester for the Japanese university which would fall in the middle of the semester for the Australian university. This decision was based on the Australian university incorporating the project as part of the course assessment. The Japanese university, on the other hand, did not have room in the course curriculum and implemented the project by recruiting volunteers from 1st-year courses as a pilot.

Facebook was chosen as the medium of communication and interaction. It was generally thought that both student populations were more familiar with and used Facebook compared to other social networking applications. Research by White (2009) illustrated how language learners who participated in an online tandem learning project increased their interactions on Facebook which is similar to a study by Socket (2011) who reported that English-language students at a French university used Facebook to communicate with speakers from the target language.

Participants in Australia were Japanese language learners and had a level of B1+ according to the Common European Framework of Reference for Languages (CEFR) while participants in Japan were English Language students. The participants in Japan had a score for the Test of English for International Communication (TOEIC) that was between the range of 550 - 600. This is equivalent to the Common European Framework of Reference for Languages (CEFR) English language proficiency level of A2-B1. At the start of the semester, instructors of both student populations (Australia and Japan) explained the concept of tandem language learning to the students and the details of the Facebook project. Students were given a short presentation on the project which included information about its duration, the expected level of participation, the language of choice, and information about the participating universities in Australia and Japan. Students were given some background on the nature of the Australian and Japanese students, mainly their history of learning the target language. There was a total of 88 students from the two cohorts and an equal number of students in each cohort. The Japanese students who showed some interest in participating in the project were encouraged to volunteer. Consequently, 44 students from three different 1st year listening and speaking workshop classes participated. Students who agreed to volunteer were instructed to create a Facebook account if they did not already have one.

The placement of students in groups was conducted by using a Google Form that asked students to choose three topics they are interested in from the following: arts, books, fashion, food, films, manga and anime, music, travel, and video games. Students were then placed in Facebook group topics respective to their top choice. There were between 8-10 members from each group. Group numbers were kept at an even number in the hope of ensuring a more balanced level of target language use. It was agreed by both the Australian and Japanese university teachers, that the Australian students would initiate the posts and keep all their writing in Japanese as this was part of a summative assessment for the course. The Japanese students were instructed to write their posts in the target

language (English); however, they were given the freedom to also write in Japanese should they prefer. Ultimately, both student populations were asked to interact in assigned groups by posting and commenting on their group's forum. Students were encouraged to upload pictures or short videos related to the topic that they have chosen, while also regularly contributing to their group's Facebook page. Finally, students were told that while teachers would be able to view the posts, they will not facilitate or contribute to them in any way other than to make short announcements regarding the project.

Participants

The study described in this paper focuses on the Japanese cohort. A total of 44 students consisting of 18 males and 26 females who are first-year English majors volunteered for the project however, only 36 participants from the Japanese group completed the questionnaires. None of these participants have ever participated in online projects before. Participation was purely volunteer based; hence participants did not receive any credit or grade for their participation in the project.

Data Collection and Analysis

To discover students' reactions to the project, a survey questionnaire was collected at the end of its conclusion. The questionnaire included a total of twelve questions, of which eight were quantitative and four were open-ended. There were four "yes" or "no" questions which were followed by open-ended questions that asked students to elaborate on their answers in the language of their choice. There were also four multiple-choice questions to discover participant motivations for volunteering and explore ways in which the project promoted autonomy. Due to the varying nature of students' language proficiency, the questionnaire was bilingual, and students were given the freedom to answer the open-ended parts of the survey in either language. This was also done to gain further insights into students' actions and perceptions of the project. Japanese responses to the open-ended questions were translated by the author. The translations were confirmed by a professor who is competent in Japanese for confirmation and reliability.

Quantitative data were collected and analyzed using an excel spreadsheet. Participants' responses significant to answering the research questions in the study were calculated represented in percentage amounts. Open-ended responses from the survey were analyzed via thematic analysis to recognize the main issues and emergent themes. These were identified, analyzed, and summarized to answer the research questions.

Results and Discussion

Results of Quantitative Data

There are six questions from the survey that are significant in evaluating the impact of this project on promoting learner autonomy in the Japanese student population. Data were analyzed to gain an understanding into participants' autonomous actions. In determining whether participants engaged in autonomous learning, their motivation for volunteering in the project, the number of times they took the initiative to check their tandem

group's posts, created posts, commented on other group members posts, and sought help from the project instructor were analyzed. The six questions that are significant to the research questions are 3, 4, 5, 6, 7, and 8. Table 1 exhibits quantitative data collected for the questions.

Table 1. Quantitative Results

Quantitative Survey Questions n=36 (%)	
Q3. What were your motivations for participating in this project?	
My friends joined.	11%
I would like to improve my English skills.	28%
I would like to make more friends	25%
I would like to know more about the interests of other people.	8%
I am curious about foreign people's thoughts and ideas.	28%
Q4. How often did you check the Facebook group for new posts?	
1-2 times a week	61%
2-3 times a week	2%
3-4 times a week	6%
everyday	31%
Q5. Did you make any posts?	
Yes	44%
No	56%
Q6. Did you comment on other students' posts?	
Yes	58%
No	42%
Q7. Did you seek help from your teacher?	
Yes	75%
No	25%
Q8. Would you like to participate in this project again?	
Yes	83%
No	17%

Question 3 asked participants what their motivation was for participating in the project. Results from the data collected exhibit students' willingness for volunteering in the project including the desire to improve target language skills (39%), establish friendships (36%), and curiosity about other people's thoughts and ideas (33%). It is important to also indicate that there are differences between male and female responses with female participants showing much higher levels of motivation compared to the male cohort.

Question 4 asked how often students checked their respective Facebook groups for new posts. More than 60% of the students checked their corresponding groups every day while just over 30% checked their groups only once or twice a week. This is reflected in the open-ended responses which revealed that students were curious to find out and looked forward to reading what other students have posted on their group's page or commented on their posts and as a result, checked their Facebook groups regularly. It is also interesting to point out that most students who indicated that they viewed their Facebook groups daily were the same group of students who were actively

writing posts and comments while the others who did not post or comment as much did not demonstrate as much participation.

Question 5 asked whether students made any posts in their respective Facebook groups. Students who did not post at all (56%) were greater than students who did contribute a post (44%). Respondents who explained their lack of participation in the open-ended section indicated that the reasons for not making posts were due to a lack of knowledge of the topic area, with many reporting that while it was interesting to read what others have written and would like to contribute something in return, it was their lack of confidence in not knowing enough about the topic that held them back from sharing anything in return. Furthermore, participants emphasized the lack of knowledge on how to use Facebook contributed to their lack of participation. Participants in the 56% cohort who could not post expressed their desire to share something with their group members but did not know how to use Facebook's posting functions. Finally, participants' self-consciousness held them back from posting even though they had the initial desire to participate in the project, and interest in the topic. Participants indicated that they were conscious of what others might think of what they have written, and their language proficiency, which caused them anxiety and stopped some of them from sharing.

Question 6 asked whether students commented on any posts. More than half of the participants (58%) wrote comments on other students' posts, while 42% did not. It is important to note that although participants indicated that they commented on others' posts, the majority of the comments were mostly very short with some acknowledging one's input and expressing an impression of the post by writing "That's great!", "Awesome", or "Wow" and some were simply giving silent feedback through 'Likes'. Consequently, participants' responses to their willingness to comment were that they wanted to commend other group members' efforts in creating posts, provide positive reinforcement by showing appreciation for others' input, motivate other participants to post more often, and provide effective support to enjoy online collaboration.

Question 7 asked whether students sought any help from the instructor during the project. 75% of the students asked for help from the instructor regarding various aspects of the project such as to confirm the requirements of participation – how often they should look at the Facebook group, in what manner to post or comment, how much to write in a post, and in what language they should use to interact with the Australian students effectively. Furthermore, only a handful of participants enquired about the use of Facebook functions to be able to participate and contribute to their Facebook group page.

Finally, Question 8 asked whether students would participate in this project again if given the opportunity. Most of the students (83%) indicated that they would be interested to volunteer in the project again in the future. Responses from open-ended questions revealed that participants had generally positive experiences with most citing that the interaction and collaboration online transferred to friendships, increased confidence, and motivation of using the target language in online spaces as well as recognition of gaps in their learning. Furthermore, participants who could not actively participate during the project expressed regret that they were not able to put in as much effort as they had initially intended to due to lack of time and lack of Facebook technical know-how. Hence, many expressed that they would like to have a do-over to improve their project performance if given the

chance in the future.

Analysis of Open-ended Questions

Results from open-ended questions showed that several autonomous learning attributes were demonstrated during the project. There were some themes that were expected such as participants possessing intrinsic motivation, reciprocity, and reflection on learning. On the other hand, there were some emergent themes which were not expected such as gained interest in culture and becoming more interculturally aware. Other unexpected themes included the importance of task design and difficulty of navigating with the medium of technology chosen for the project.

A Sense of Community Enhanced Intrinsic Motivation

Volunteering in the project alone seemed to increase the students' intrinsic motivation. From the aforementioned quantitative data, most participants volunteered due to their desire to improve target language skills, make friends with people living overseas, and proclivity toward other people's thoughts and ideas. The project also increased this motivation further as a result of implicit encouragement triggered by examples of what other students were setting from their posts. Participants explained that they were inspired to post or comment after reading what others have written and seeing their efforts. One participant reported that "Many people posted so many great things" and as a result, "learned a lot" and wanted to say to show appreciation for doing a "great job writing (in) Japanese." Another student specified that they "...liked what the Australian student posted" because it was something that they were also interested in, which consequently prompted them to share their thoughts on the same topic. Furthermore, the intrinsic motivation to interact was encouraged by the desire to establish relationships with people in the target language as reported by a student from the music group: "We were interested in the same type of music, and I liked how they like Japanese groups too so I wanted to become friends." Rovai (2002) suggested that the willingness to share information, provide support, and encouragement of collaborative efforts increase in online spaces such as Facebook as they provide a strong sense of belonging in a community. This is also similar to findings by Kok (2008) who argues that virtual communities create a sense of belongingness as they provide opportunities for learners to interact, learn and work collaboratively which are important for enhancing the learning experience of students. In the dynamics of web 2.0, forming a community of practice is conducive to interaction and engagement which is linked to autonomy.

Initiative to Reciprocate

Seeing the effort and contributions of other peer members led participants to want to invest in the group posts as much as the others. During the initial stages of the project, Japanese participants reported that they were reluctant to post, and waited for their Australian counterparts to begin posting. However, as the project progressed over time, they saw the effort and the level of input that their Australian peers were contributing and this encouraged them to share in return as a way to show their appreciation and support of those students. For instance, a student from the group discussing films stated, "I wanted to say good job for writing so good (well) in Japanese, so I

wrote a comment". This corroborates with Koch's (2017) third dimension of reciprocity which he termed 'discursive', which states that to accomplish interactions, the interlocutors in tandem adapt to each other in various ways. Furthermore, reciprocity can also be seen in students who made conscious efforts to write their comments in the interlocutor's target language or for clarifying expressions incorrectly used in the target language. Cappellini and Rivens Mompean (2015) argue that this aspect of reciprocity is pivotal as learners ascertain a learning need or learning goal which they pursue with a native speaker. For instance, a participant from the music group revealed that when an Australian participant wrote a comment in English, he supported the comment by writing in Japanese and vice versa as they became conscious of their group member's language goals stating that "My Australian partner said she needs to write in Japanese as much as possible to get a good grade, so I wrote back (to) her in Japanese."

The Project Promoted Reflection on Learning

Along with making a conscious effort to reciprocate with group members, responses further displayed how interaction on Facebook encouraged many students to explore various ways of improving target language skills and to share their language learning experiences. One of the pedagogical principles in the development of learner autonomy according to David Little (2004) is that a learner should reflect on one's learning at a macro and micro level. According to Little (2004), it is important for learners to be able to evaluate their relationship to the learning process by identifying their strengths and weaknesses which grow out of ongoing interaction. Reports by participants indicated reflective learning practices such as observation of the experience and reflecting on it. Japanese learners evaluated their experiences and considered the areas of improvement that they felt was necessary for development.

A study by Solmaz (2017) into the use of Twitter amongst autonomous language learners indicated that Twitter provided a space for learners to reflect on target language learning experiences. For instance, a student who was in the travel group stated that after developing an interest in a place they "heard from another group member encouraged" them to investigate that specific place further by "finding YouTube videos and reading travel websites." Thus, reading other students' input on the group's forums promoted students to take the initiative to inquire on how to gain further language input. Moreover, the inability to participate due to lack of time and knowledge of how to use Facebook prompted others to reflect on their performance overall. Responses such as "If I could have another chance to participate, I would be more proactive" and "It was hard to comment when someone had already started a conversation. Next time, I would like to start the conversation." illustrates reflection on one's participation and engagement during the project. The desire to want a do-over is reflective of students' motivation for learning and interaction.

Participants also revealed in their responses that they became more concerned with writing concisely and grammatically as they read what others have written. Reading their tandem group members' input prompted more initiative to focus on form as they write. Because other students read their posts, students became more conscious of what they are writing subsequently focusing on the structure and grammar. Participants stated that things such as "My Australian group members' Japanese were really great" and "I tried very hard to write something good

because they could do it" show participants' emphasis on focusing on language form. Schwienhorst (2003) specifies the social interactive nature of tandem learning is conducive to reflection. He asserts that asynchronous writing plays a vital role in developing reflective, interactive, and experiential learning which are associated with autonomy. That is to say that by going through the writing process, learners have the chance to develop their writing in the target language by having the opportunity to inspect and review their ideas.

Intercultural Awareness

An unexpected theme that emerged from participant responses obtained from an open-ended questionnaire included intercultural awareness. Japanese students discovered that some of the participants from the Australian group were not from an Australian background. A Japanese student from the food group proclaimed that she was surprised that "not all people in Australia are Aussies" which "was very interesting for me." Another student from the music group reported that she "learned about Vietnamese dishes because my partner is Australian-Vietnamese" and that her partner "taught her about the Vietnamese food culture." Such reports illustrate how the project provided a platform for intercultural exchange. Raluy and Szymanska-Czaplak (as cited in Tardieu and Horgues, 2020) emphasise that online collaborative practices seem well-positioned to build students' intercultural competence. Online collaborative practices such as this Facebook project provides a window of opportunity for learners to look observe, analyse, interpret, and relate to those outside of their culture. Tandem learning provides a window to others' way of thinking that encourages openness, curiosity, and discovery and shapes people's attitudes (Raluy and Szymanska-Czaplak as cited in Tardieu and Horgues, 2020). Subsequently, the Facebook project seemed to have given a window for Japanese participants to look outward. Students revealed that as they read more of what their Australian counterparts posted, they felt closer and developed more interest in the specific cultural topics that were discussed on their group's pages. For instance, a student from the manga and anime group stated that through discussion of manga they "could learn about other people's culture and deepen (my) ties with them." A study conducted by Aydin (2012) concluded that SNS like Facebook could provide a valuable educational environment, especially in regards to learning about cultures. Furthermore, students were excited to discover cultural similarities and differences, and mentioned that "there was someone I (had) similar interest with" and "watched the same anime a lot". One student commented that she "enjoyed reading" about the cultural differences between Japan and other countries, adding that "I looked forward to reading about the differences as they were very interesting (things) I did not know about (before)". Raluy and Szymanska (as cited in Tardieu and Horgues, 2020) highlight that interacting with partners from different cultural backgrounds promotes intercultural sensitivity as people learn to acknowledge cultural differences.

Task-Design

Another issue that arose in the study includes the relationship between task design and student performance. Many students pointed out that although they had the motivation to participate in the study, they were not able to participate as much as they had intended to due to the nature of how the tasks were designed. Several students reported that they would like to have "more group members in the group next time" and those others felt their groups were limiting as "there were not enough people in one group." Furthermore, there were participants who

reported that they "would like to participate in different topics" suggesting that it would have been better if they were allowed to participate in the other groups so that they could have posted more since "if you (didn't) don't know enough about" the topic, "it was hard to post anything." Student reports corroborate with a study by Hauk and Youngs (2008) who argued that participation in oral/aural synchronous learning does not necessarily result in meaningful and motivated language learners. They emphasize that simply participating in online collaborative projects does not necessarily translate to successful exchanges unless tasks are well-constructed.

Medium

The choice of social networking medium also affected the participation of most Japanese students. There are participants who reported that they "don't use FB very much so I (I'd) rather use Instagram or LINE when it comes to joining a community and talking with others online." Further, others indicated that "FB is not popular with Japanese people" so the project should have been "run on LINE". Consequently, the lack of training and knowledge on how to use Facebook by Japanese participants negatively affected the level of interaction and collaboration on group pages as a result. Such finding coincides with Blattner and Lomica's (2012) investigation into students' view of the integration of Facebook into the language curriculum indicates that familiarity with technology does not necessarily mean that learners would know how to take advantage of online tools and resources, particularly web 2.0 tools. Thus, their study calls for guidance from teachers to facilitate and guide students through the learning process.

Conclusion

This study investigated how a web 2.0 tool such as Facebook could foster learner autonomy amongst EFL learners in a Japanese university. The study contained two research questions to explore learners' perspectives on the project and their participation was analyzed to see whether they engaged in self-directed learning. Findings revealed that students' perception of the project was generally positive with many indicating that they would like to have the opportunity to participate again. A great majority of the students also expressed how the project helped them forge interpersonal relationships with students from the target language. Nonetheless, there were reports of dissatisfaction with the design of the project tasks. Students felt that restricting participation in one group forum and discussing one topic hindered the level of interaction and discouraged socialization with the other students. Among suggestions to improve this type of project, students expressed the wish for LINE application to be used instead of Facebook as a preferred social networking application. According to Statista, the rate of usage of Facebook in Japan is low compared to online applications such as LINE, Twitter, or Instagram (Statista, 2021). Research by Statista in 2021 showed that the penetration rate of LINE is 80% and that more than 90% of people between the ages of 13 and 19 use LINE as the main form of communication online. Furthermore, some students indicated that they would like teachers to provide them with more task structure and to receive more guidance to help them compose posts and to be able to comment on other students' writing.

In relation to the research question of whether autonomy was exercised, analysis of open-ended responses showed that students implicitly took control of learning by interacting and collaborating with tandem group members.

Participants in the study reflected on their language use and overall performance. Those who participated consistently throughout the project made conscious efforts to focus on language form when composing posts and writing comments in the target language. Participants who were not as consistent in engagement and participation expressed regret for the lack of participation and would like to have another chance.

Moreover, it can also be seen from the study that participants already possessed intrinsic motivation from volunteering for the project. Intrinsic motivation is one of the main components of self-directed learning and according to Ushioda (2000), learners' intrinsic motivation and the principles of tandem learning- reciprocity and learner autonomy – have a corresponding relationship. Further, the intrinsic motivational learning process in tandem learning is said to fundamentally shape autonomous learning characteristics of developmental and experiential learning. Thus, taking the initiative to post and comment shows student engagement with tandem partners and experimentation with language are autonomous learning qualities.

Finally, one of the attributes of tandem learning is reciprocity which is one of the tenets of autonomy. Students expressed their appreciation of their group members' input by making a conscious effort to put up posts and comment on their Australian partners' posts in Japanese instead of the target language, English. Furthermore, as Japanese participants became more aware of their Australian counterparts' language learning goals, they took the initiative to support them by posting and commenting on the group's Facebook page. Little and Brammerts (1996) confirm this as successful learning in tandem which is when learners mutually invest as much time and effort in preparation and support of learning.

Implications

- The pedagogical implications that this study has brought up include
- Well-constructed tasks are vital to the success of the achievement of the desired learning outcome. Educators need to ensure that tasks are appropriate to the medium and take into account the affordances, constraints, and possibilities for making learning meaningful.
- Combining technology and pedagogy to encourage learners to reflect not just after the activity but throughout the course of the activity. Schwienhorst (2003) prescribes the pressures, affordances, and potentials of using technology and pedagogy for reflective processes. Synchronous or asynchronous environments need to provide both teachers and students with the ability to plan, monitor, and evaluate the learning processes for effective reflection as we cannot expect learners to know how to reflect and carry out reflection on their own. Guidance and support including learner training are essential for critical reflection (Schwienhorst, 2003).
- Foreign language classrooms need to embed intercultural awareness and communicative competence skills to cultivate students to be more open-minded and adapt to ever-changing global environments. According to Byram (1997) being an intercultural communicator means developing communicative skills and attitudes that are necessary for understanding and for relating to people from different cultural backgrounds. Thus, having cultural knowledge of other cultures is no longer sufficient in today's globalized world, and developing intercultural competence is a lifelong learning process and cannot be acquired in a short time. Online virtual exchanges such as tandem language and culture learning can arguably play an important role in preparing

students for global citizenship.

- Using online tools appropriately and embedding them into the foreign language curricula. According to Akbari et al (2016), there are two components of student engagement. The amount of effort and time that students spend on learning and how institutions organize, and create learning environments. We can infer that institutions have the responsibility to ensure that they provide conditions for learning where students' minds are stimulated and engaged. To this end, education institutions should encourage the development of lifelong learning skills such as autonomy. Research has shown that tandem learning requires that learners take control of the learning process. In other words, tandem learning takes a learner-centered approach to learning as it provides learners the opportunity to select the content of the activity, exercise, plan, monitor, and evaluate their own learning as well as take responsibility for their tandem partner's as well.

Limitations

This study was conducted based on a small sample size which is not representative of all Japanese foreign language learners. A larger sample size such as recruiting all first-year students to participate in the study would give researchers a better understanding of the development of learner autonomy from this tandem learning project. Moreover, some questions about how participants found topics to post about, how they went about writing posts, and the level of collaboration among group members would have given the researcher more insights into student engagement. In addition, pre-assessment of autonomy and post-assessment would give a better understanding and picture of student autonomy which would further substantiate the benefit of using Facebook to promote autonomy. Finally, triangulation of data by interviewing participants from various levels of engagement would give the study deeper insights into the reasons for interaction and the kinds of autonomous acts that they got involved in that are unknown to the researcher. For instance, interviewing those participants who stopped participating during the project and those who participated right to the end of the project.

Notes

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The Associations between Metacognitive Reading Strategies and Critical Reading Self-Efficacy: Mediation of Reading Motivation

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The Associations between Metacognitive Reading Strategies and Critical Reading Self-Efficacy: Mediation of Reading Motivation

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Abstract

The aim of this study is to test the mediation of reading motivation between preservice teachers' metacognitive reading strategies and critical reading self-efficacy. For this purpose, a sample of 482 preservice teachers studying at the education faculty of a state university located in a city center in the Central Black Sea Region in the spring semester of the 2019-2020 academic year. Participants were determined by convenience sampling method. Self-efficacy Perception Questionnaire about Critical Reading Skills, Metacognitive Reading Strategies Scale and Adult Reading Motivation Inventory were used as data collection tools. In the analysis of the data, mediation analysis was performed with the Pearson Product-Moment correlation analysis using the Jamovi software. In the findings obtained, it was found that there were positive and highly significant relationships between dependent, independent and mediator variables. Metacognitive reading strategies were found to be significant predictors of reading motivation and critical reading self-efficacy. In addition, reading motivation was found to be a significant predictor of critical reading self-efficacy. According to the findings of the mediation analysis carried out as a result of provided these assumptions, it has been revealed that reading motivations have a partial mediating role between preservice teachers' metacognitive reading strategies and critical reading self-efficacy. In conclusion, reading motivation explains some of the relationship between metacognitive and critical reading.

Introduction

According to the constructivist approach, reading is a process in which prior knowledge and information in the text are integrated and re-interpreted. This process consists of various processes of the eye, sound and brain such as seeing, vocalizing, understanding, structuring in the mind (Gunes, 2014). With reading, the individual can contribute to his horizon and creative side by improving his vocabulary. In this respect, gaining meaning skills through reading emerges as an important element in an individual's life and educational processes. In this sense, it is very important for teachers to develop their skills of constructing meaning through reading and to enable them to gain these skills to their students (Akyol, 2011).

Reading skill, besides affecting all other language skills, is also effective in the success of the individual in his

lifetime and education life. Reading is a process that includes mental processes as it is directly related to understanding. Therefore, it can be said that the reading motivation, which will be realized with the formation of interest and curiosity in achieving success in reading, will be effective in directing the individual to reading and in the success of the reading process (Turkben, 2020). In this context, motivation is also an effective factor in the tendency towards reading (Yildiz & Akyol, 2011).

Reading motivation is related to the development of reading skills as well as gaining reading habits. For this reason, directing students to read meaningfully and correctly by their teachers after learning to read will also positively affect students' comprehension and expression skills (Saracli Celik & Karasakaloglu, 2021). Students who have reading comprehension problems have a lack of motivation also. For this reason, it can be argued that reading activities carried out by teachers in providing motivation for reading can also increase reading motivation (Celikturk Sezgin & Akyol, 2018). In this context, reading motivation can be effective in displaying a positive attitude towards reading and in training on reading (Kennedy & Chinokul, 2020).

Metacognitive reading strategies emerge as an important element in making reading meaningful, in the positive realization of reading and learning, and in the success of reading. Metacognitive reading strategies facilitate understanding and are also effective in planning learning. It can be said that metacognitive reading strategies are an element that can be used by teachers in making sense of what students read and planning reading and learning (Ahmadi et al., 2013). In this sense, metacognitive strategies come to the fore in determining and executing the processes to be followed in the comprehension process, as well as being effective in making sense of reading and achieving the targeted success. At the same time, it can be said that metacognitive strategies affect students' understanding and learning processes positively (Firat & Kocak, 2019; Güner, & Erbay, 2021; Hwang et al., 2021). Therefore, metacognition can be effective in maximizing and controlling learning by planning learning (Jou, 2015) and provides advantages to the individual in meaningful reading (Daguay-James & Bulusan, 2020).

Metacognitive reading strategies are a prominent factor in the education process. The first step of students' learning is the process of reading and making sense of what they read. The healthier these processes are, the more successful they will be. In this sense, it is important that metacognitive reading strategies have a positive effect on learning processes. In addition, metacognitive reading strategies have a positive effect on the success of reading comprehension, as they enable reading to be performed consciously and with awareness. In this respect, it is a very important issue for teachers to include metacognitive reading strategies in the teaching process (Thongwichit & Buripakdi, 2021). Therefore, it is a significant point to be considered in terms of education that teachers should know metacognitive reading strategies before starting their professional life and teach these strategies to their students when they perform their profession in the future. Because reading is one of the most efficient method of learning, it is an issue that needs to be emphasized by using metacognitive strategies (Cetinkaya Edizer & Ozbilgin, 2019).

Reading, a skill acquired in childhood and needed in all periods of life, is generally intertwined with other language skills (Aydin, 2020). Today, it is possible to reach many reading resources for the development of reading skill, which is so important. Nowadays, the possibilities of accessing information are expanding and more

information can be accessed more easily. It is also important to use this information obtained in this direction correctly and to reach new information. Therefore, critical reading skills come to the fore to use the readings more efficiently, to make judgments on what is read and to make a judgment (Cam Aktas, 2015).

"Critical reading is the efforts of individuals to find the better, the more beautiful, the more truth by filtering what they read and what they have learned through reading through their own knowledge and experience; and activities to produce better, more beautiful, more accurate mind products with what they have learned from what they have read." (Cifci, 2006). At the same time, critical reading skills come to the fore in terms of enabling the formation of scientific and critical thinking skills. Therefore, acquiring critical reading skills is important as it provides the way for the growth of inquiring, curious and thinking individuals (Gunes & Gunes, 2014).

Critical reading is an effective skill in determining the purpose of the writing, making evaluations, finding logical inferences, and looking deeply at what is told with a critical essence (Ozensoy, 2011). Critical reading, which is an important skill, is closely related to the acquisition of a critical perspective. In this context, the role of teachers in students' gaining critical skills is quite large. For students to develop critical reading skills and have a critical perspective, first of all, the teacher must have this act. For this reason, the teacher should have sufficient knowledge and teaching competencies to enable students to gain a critical perspective (Karabay, 2013). In this context, it can be said that equipping the teachers with these competencies before starting their professional life will provide great advantages for the teacher to be more efficient and effective.

Significance and Purpose of the Study

Reading skills are one of the important language skills in personal and academic development. Considering that the attitudes and motivation towards reading increase as they read, it is necessary for teachers to adapt to the rapid changes occurring today and to benefit from reading skills in teaching their students effectively. Preservice teachers should also improve themselves by reading frequently during their university education and when they start their profession. From this point of view, preservice teachers who perform reading according to processes such as planning, monitoring, controlling, and evaluation use a kind of metacognitive reading strategies. In addition, in the 21st century, which is the information age, reading every piece of information without questioning and believing that information can lead to wrong and incorrect learning. In fact, preservice teacher may cause misconceptions by transferring the knowledge he has learned to the students when they start the profession. In this respect, preservice teachers who read critically and believe that they have this skill will act selectively and attentively while reading. In this study, the relationship between preservice teachers' metacognitive reading strategies and critical reading self-efficacy was examined. It was also tested whether reading motivation mediated this relationship. The research is thought to be important in terms of introducing a new model and looking at preservice teachers' reading skills from a wider perspective.

When the literature about the study was examined, similar studies were not found. Baki (2019) investigated the effects of preservice Turkish teachers' metacognitive reading strategies on reading motivation. Sahin (2019) examined the relationship between preservice Turkish teachers' critical reading self-efficacy perceptions and their

reading motivations. Karasakaloglu et al. (2012a) examined the metacognitive reading strategies, critical thinking attitudes, motivational-cognitive and metacognitive competencies of preservice Turkish teachers. Ulu (2019) examined the relationships between preservice teachers' attitudes towards reading and their reading habits, awareness of metacognitive reading strategies and critical thinking dispositions.

In addition, Yildiz et al. (2013) adapted the Adult Reading Motivation Inventory into Turkish; Kurnaz (2019) also developed the Reading Intrinsic Motivation Scale. There are studies examining preservice teachers' critical reading perceptions and levels (Aybek & Aslan, 2015; Bagci, 2019; Cam Aktas, 2016; Kaplan, 2021; Karasakaloglu et al., 2012b; Maltepe, 2016; Ulu et al., 2017); reading motivation (Baba Ozturk & Aydogmus, 2021; Basara Baydilek et al., 2018; Gecgel et al., 2020; Savaskan & Ozdemir, 2017; Soyucok & Balantekin, 2021), and metacognitive reading strategies (Babacan, 2012; Demir, 2022; Emre, 2019; Kana, 2015; Ozdemir, 2018; Ozden, 2018; Uyar et al., 2012). However, no study was found in which all three variables were used together. Based on this reasoning, this study aims to determine the mediating role of reading motivation in the relationship between preservice teachers' metacognitive reading strategies and critical reading self-efficacy. The hypothesis model and research hypotheses created within the scope of the research are given below.

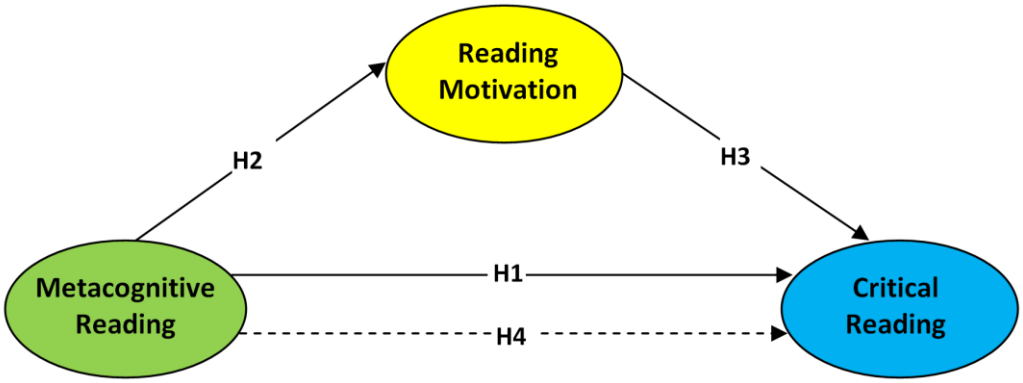

Figure 1. Hypothesized Model for the Research

As seen in Fig. 1, while metacognition reading is independent variable, the critical reading is the dependent variable. Reading motivation is the mediating variable on this relationship. For this hypothesis model, the following sub-questions were tested:

H.1. Does metacognition reading predicts the critical reading?

H.2. Does metacognition reading predicts the reading motivation?

H.3. Does reading motivation predicts the critical reading?

H.4. Does metacognition reading predict the critical reading with the mediating effect of reading motivation?

Method

Research Design

This research was carried out using the correlational research design, one of the quantitative research methods. This design allows the researcher to be described as it is, without any effect on the existing situation. This design

is used when it is desired to obtain information about the degree, direction, and level of the relationship between two or more variables (Creswell, 2020; Fraenkel et al., 2012). In this study, this design was used because the mediating role of reading motivation in the relationship between critical reading, which is the dependent variable, and metacognitive reading, which is the predictor variable, was examined.

Participants and Sampling

The participants of the research consist of preservice teachers studying in different departments of the education faculty of the university located in a city center in the Central Black Sea Region of Turkey in the spring semester of the 2019-2020 academic year. In this context, 482 preservice teachers determined by convenient sampling method took part in the study. Of the prospective teachers, 368 (76.3%) are female and 114 (23.7%) are male students. The average age of the students is 20.69 and is distributed between the ages of 18-31 (SD = 1.80).

Data Collection Procedure and Instruments

This study was carried out in accordance with ethical rules, adhering to the permissions obtained from the Social Sciences Ethics Committee of Amasya University in Turkey. Data were collected in the fall semester of 2019-2020. The students were informed about the possible risks and benefits, the purpose of the study and ethical rules. A paper and pencil survey was used to test the suitability of data collection tools on the different sample. To prevent missing data and ensure the trueness of the answers, the forms were distributed to the preservice teachers who wanted to participate in the study voluntarily. The application time approximately took 20-30 minutes.

Personal Information Form: A personal information form was used to collect demographic information such as gender and age of preservice teachers.

The Self-Efficacy Perception Questionnaire on Critical Reading Skills is developed by Kucukoglu (2008) and aims to measure preservice teachers' level of self-efficacy perceptions along with their critical reading skills. Analysis of the measurement tool was carried out using the data of 227 preservice teachers from different universities. The measurement tool, whose draft form consisted of 33 items, consisted of 25 items in line with expert opinions after the pilot study. Examples of some sub-dimensions of critical reading skill are "introduction, development, separating the conclusion parts", "interpreting the read text", "analyzing skill", and "understanding skill". The scale uses a 5-point Likert scale (from 5–Strongly agree to 1–Strongly disagree). A total score is obtained for the answers given to the scale statements. While the Cronbach's alpha reliability coefficient of the scale was determined as .85; for this study it was calculated as .94.

Metacognitive Reading Strategies Questionnaire: The scale developed by Taraban et al. (2004) was adapted into Turkish by Cogmen and Saracaloglu (2010). It is used to determine the level of use of metacognitive strategies by university students while studying or reading about the course. The scale has two sub-dimensions, analytical strategies and pragmatic strategies. There are a total of 22 items in the scale, and a 5-point Likert scale (from 5–Strongly agree to 1–Strongly disagree) is used for answering. For construct validity, factor analysis was performed

with data collected from 726 university students. As a result of Explanatory Factor Analysis (EFA), Kaiser-Meyer-Olkin (KMO) value was found to be high at the level of .80 and Bartlett's test was found to be significant. The total variance explained was 32.96%, and the factor loads were distributed between .31 and .85. While the Cronbach's alpha reliability coefficient of the scale was determined as .81 in the original study, it was calculated as .87 for this study.

Adult Reading Motivation Inventory: It was developed by Schutte and Malouff (2007) to determine and measure adults' reading motivation. Yildiz et al. (2013) made the adaptation of the scale into Turkish. The sub-dimensions of the scale, which consists of four factors and 19 items, are named as self, competence, recognition and other. Confirmatory Factor Analysis (CFA) was tested for the construct validity of the scale. As a result of CFA, the fit indices were found were at an acceptable level (x^2/df = 2.50, RMR = .055, CFI = .86, AGFI = .83, GFI = .87, RMSEA = .077). According to these values, construct validity was ensured and it was stated that scale was a valid measurement tool. While the Cronbach alpha internal consistency coefficient calculated for the reliability analysis was determined as .86; it was found to be .92 for this study. Test-retest analysis was applied and it was determined that there was a significant relationship between the two applications.

Data Analysis

The data of this study was first coded in Excel and the data set was analysed using Jamovi 1.6.23 software. Before performing the mediation test, the accuracy, normality, and suitability of the data for analysis should be tested (Hair et al., 2014; Tabachnick & Fidell, 2014). Normality tests in Jamovi software were examined with the Shapiro-Wilk test and skewness- kurtosis coefficients (see Table 1). It was observed that the data were in the near-normal range. In addition, the minimum-maximum values and averages of the variables were tested using descriptive statistics for the accuracy of the data. It was found that no missing values and no extreme values were found in the data set .

In testing the relational data analysis, Pearson Product-Moment correlation analysis was applied to determine whether there is a multicollinearity problem and correlation adequacy between the mean scores of the variables to be included in the analysis. When the correlations between the variables were examined, it was seen that all the relationships were below 0.80 (between 0.61 and 0.65) and it was determined that there was no multicollinearity problem (Tabachnick & Fidell, 2014). Regression analyses were used to test the predictiveness of the variables and R^2 was obtained for the mediator variables.

In the second stage, the mediation of reading motivation in the relationship between metacognitive reading strategies and critical reading self-efficacy was tested. Baron and Kenny's (1986) assumptions were taken into account in order to understand the type of the mediation, that is, to determine whether it is a partial or full mediator. As a result of the mediation analysis performed with the Jamovi software, z estimates for direct and indirect effects were obtained. In addition, the statistical significance of the mediation model and bootstrap analyses were applied with a 95% confidence interval using the same software. 10000 bootstrap samples were used for mediation analysis in the study. The analyses were performed at a .05 level of significance.

Results

Associational Results

Table 1 shows the results of Pearson's Product-Moment correlation analysis performed to determine the relationships between variables, and the results of mean, standard deviation values, and skewness-kurtosis coefficients. A high level of positive and significant correlation was found between metacognitive reading strategies and reading motivation ($r(482) = 0.61$, $p < .001$). A highly positive and significant correlation was found between critical reading self-efficacy and metacognitive reading strategies ($r(482) = 0.68$, $p < .001$). Finally, it was determined that there was a high and positive significant relationship ($r(482) = 0.65$, $p < .001$) between critical reading self-efficacy and reading motivation. It has been determined that there is a high level of relationship according to findings of the correlation analysis (Field, 2013). When the levels of the variables are examined, the mean scores of preservice teachers' metacognitive reading strategies ($M = 90.20$, $Sd = 16.40$), reading motivation ($M = 63.70$, $Sd = 14.00$) and critical reading self-efficacy ($M = 94.80$, $Sd = 15.70$) are all above medium. After these results, mediation tests were started.

To test the mediation effect, four basic conditions must be met (Baron & Kenny, 1986):

1. Independent variable X must predict the dependent variable Y.
2. Independent variable X should predict mediator variable Z.
3. The mediator variable Z should predict the Y when controlling for the effect of X.
4. When the effects of the Z on the X and Y variables are controlled, it is expected that the correlation coefficient between the X variable and the Y variable will decrease (partial mediation) or the relationship will be meaningless (full mediation).

Table 1. Pearson's Product-Moment Correlations Among the Study Variables

	1	2	3
1. Metacognitive Reading			
2. Reading Motivation	0.61***		
3. Critical Reading	0.68***	0.65***	
M	90.20	63.70	94.80
SD	16.40	14.00	15.70
Skewness	-0.07	-0.27	-0.20
Kurtosis	-0.13	-0.04	0.19

Note: ***p <.001.

According to the results of the regression analysis revealed when the mediator role was tested, it was found that metacognitive reading strategies significantly predicted critical reading self-efficacy ($R^2 = .47$). Metacognitive reading strategies were found to significantly predicted reading motivation ($R^2 = .37$). In addition, when the effect of metacognitive reading strategies was controlled, it was found that the mediating variable reading motivation predicted critical reading self-efficacy ($R^2 = .56$). In conclusion, the first three of the mediation assumptions were confirmed. To test the fourth hypothesis, the mediating role of reading motivation in the relationship between

metacognitive reading strategies and critical reading self-efficacy was analyzed and the findings were given in Figure 2 and Table 2.

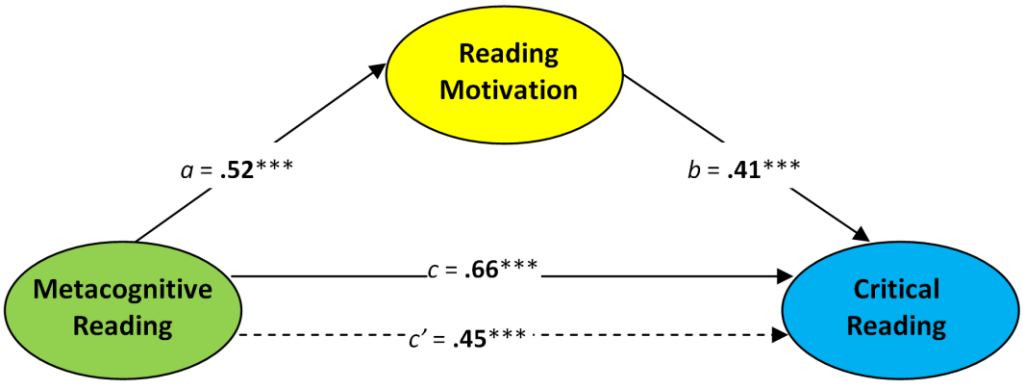

Figure 2. The Mediation Model of the Research

Table 2. Results of Mediation Analyses

					95% Confidence Interval	
	B	*SE*	*z*-value	*p*	Lower	Upper
Components						
Metacognitive reading → motivation	0.52	0.03	15.43	0.001***	0.45	0.58
motivation → critical reading	0.41	0.05	8.20	0.001***	0.31	0.51
Direct effects						
Metacognitive reading → critical reading	0.45	0.04	11.18	0.001***	0.37	0.52
Indirect effects						
Metacognitive reading → motivation → critical reading	0.21	0.03	8.30	0.001***	0.16	0.28
Total effects						
Metacognitive reading → critical reading	0.66	0.03	20.61	0.001***	0.59	0.73

Notes. Unstandardized estimates reported in mediation analyses. Indirect effect confidence intervals and standard errors are based on 10,000 bootstrap samples. ***p <.001.

According to Figure 2, it is seen that the overall effect of metacognitive reading strategies on critical reading self-efficacy (c = 0.66, SE = 0.03, z = 20.61, p < .001) was significant. The direct effect of metacognitive reading strategies on the reading motivation (a = 0.52, SE = 0.03, z = 15.43, p < .001) was significant. The direct effect of reading motivation on critical reading self-efficacy (b = 0.41, SE = 0.05, z = 8.20, p < .001) was significant. The correlation between metacognitive reading strategies and critical reading self-efficacy decreased (c'= 0.45, SE = 0.04, z = 11.18, p < .001) and was found to be statistically significant after the mediating variable were included in the model. These all findings revealed that reading motivation partially mediated the relationship between preservice teachers' metacognitive reading strategies and critical reading self-efficacy. With these results, all of the mediation assumptions (Baron & Kenny, 1986) were met. Bootstrapping was used with 10000 replications and examined the significance of indirect effects. According to the findings in Table 2, which were obtained based

on the 95% confidence interval (CI); a was between 0.45 and 0.58; b was between 0.31 and 0.51, c was between 0.59 and 0.73, and c' was between 0.37 and 0.52. All these values were statistically significant.

Discussion

This research was carried out in correlational research design, in which the mediation of reading motivations in the relationship between preservice teachers' metacognitive reading strategies and critical reading self-efficacy was examined. Reading skill is an important language skill in terms of academic success, personal development and linguistic development during student and university periods. In this respect, the results of this study, which deals with the variables of preservice teachers' reading skills, are important for teachers who are also effective in their students' reading skills in their professional lives. In the light of this importance, metacognitive reading strategies was used as predictor, reading motivation as mediator, and critical reading self-efficacy as predicted variable. There are four research hypotheses regarding the relationship of these three variables. The findings regarding the research hypotheses were interpreted in this section and compared with the relevant literature.

According to the results of the correlation analysis, which were examined before the mediation tests were applied, it was found that there was a high level of positive and significant relationship between preservice teachers' metacognitive reading strategies, critical reading self-efficacy and reading motivation. In addition, the relationship between their reading motivation and critical reading self-efficacy was found to be positive, high and significant. According to this result, it can be said that as preservice teachers' use of metacognitive reading strategies and their critical reading self-efficacy increase, their reading motivation also increases. Karasakaloglu et al. (2012a), on the other hand, determined that the habit of reading books is effective on the attitude of critical thinking. Ulu (2019) also determined that the mediating role of the awareness of metacognitive reading strategies is effective on the critical thinking disposition of the attitude towards reading habit.

In the study, a significant relationship was found between preservice teachers' reading motivations and their critical reading self-efficacy. Self-efficacy is a motivational area because belief in ability and desire to succeed are related. In this context, it is an expected result that there is a significant relationship between self-efficacy and motivation. Similar results were obtained in the study conducted by Sahin (2019). In his study, Karasakaloglu (2012b) determined that preservice teachers' perceptions of efficacy regarding critical reading were low. In reaching this result, it can be argued that preservice teachers do not have sufficient knowledge and skills in critical reading.

In the studies carried out to examine the perception of critical reading self-efficacy in the literature, it was concluded that preservice teachers' critical reading self-efficacy perceptions are high (Aybek & Aslan, 2015; Cam Aktas, 2016; Eskimen, 2018). There are also studies that determined that preservice teachers' critical reading skills are at a moderate level (Karabay et al., 2015; Maltepe, 2016). All these results show that there is a significant relationship between the variables in the hypothesis model and can be used in the mediation test.

The first hypothesis for mediation analyses is that metacognitive reading strategies, which are the independent

variable, predict critical reading self-efficacy, which is the dependent variable. In this situation where there was no mediating variable, it was found that there was a direct effect of .66 between the two variables. Accordingly, the first hypothesis of the study was confirmed. This result shows that the correct and effective use of metacognitive reading strategies will affect critical reading self-efficacy in relation to reading success in general. The ability of an individual with critical reading skills to use their metacognitive skills effectively and correctly in making sense of reading is a theoretical indicator of the relationship between metacognitive reading and critical reading (Karasakaloglu et al., 2012b).

The second hypothesis of the study is that the independent variable, metacognitive reading strategies, significantly predicts the mediating variable, reading motivation. This hypothesis was confirmed and it was understood that metacognitive reading strategy was a significant predictor of reading motivation. Similarly, Akbabaoglu and Yildiz Duban (2021) determined that there is a positive and significant relationship between preservice teachers' metacognitive reading strategies, reading motivations and reading habits. Meanwhile, Baki (2019) concluded that preservice teachers' metacognitive reading strategies are an important predictor of increasing motivation. Ozturk and Aydogmus (2021), on the other hand, determined that there is a positive significant relationship between preservice teachers' reading motivation and their use of metacognitive strategies. Senturk and Gocer (2019) also found that they are generally highly motivated towards reading. Urun Karahan (2015) stated that preservice teachers' motivation for reading is at a good level.

The third hypothesis of the study is that preservice teachers' reading motivation scores significantly predict their critical reading self-efficacy scores. This hypothesis was also confirmed, and it was found that reading motivation had a positive and significant predictive role in critical reading self-efficacy. Similarly, Can and Bicer (2021) revealed that reading habit is an important predictor of critical reading skills. Similarly, in his study, Bagci (2019) determined that reading habits positively affect critical reading self-efficacy perceptions. Kosem (2019) also determined that there is a significant relationship between preservice teachers' reading attitude and critical reading self-efficacy perception levels. Kucukoglu (2008), on the other hand, determined that preservice teachers consider themselves sufficient in critical reading.

The final hypothesis of the study is that reading motivation plays a mediating role in the relationship between preservice teachers' metacognitive reading strategies and critical reading self-efficacy. When the mediating variable is added to the model, the decrease in the relationship between the independent and dependent variables indicates that there is partial mediation. In other words, the fact that preservice teachers' metacognitive reading strategies increase and increase of their critical reading self-efficacy depends on their reading motivation. In addition, the decrease in the relationship between metacognitive reading strategy and critical reading self-efficacy from .66 to .45 is another indicator of partial mediation. As a result of the validated mediator model, as the metacognitive reading strategies of the preservice teachers increase, their motivation also increases and it can be said that this increase also leads to an increase in their critical reading self-efficacy. Baki (2019) stated that preservice teachers' metacognitive reading strategies are a significant predictor of their reading motivation; and the fact that Can and Bicer (2021) stated that reading habit is a significant predictor of critical reading skills reveals that this mediator model is theoretically validated in practice and its function.

Conclusion and Recommendations

As a result, in this study, the relationship between three different variables related to preservice teachers' reading skills was discussed. Considering that preservice teachers are role models for their students when they start their profession, it is an undeniable fact that they have important responsibilities in the development of their students' reading skills. In this respect, preservice teachers should also use reading skills frequently for their academic and personal development. The fact that metacognitive reading strategies are a significant predictor of both reading motivation and critical reading self-efficacy requires researchers to conduct more studies on this subject in the future.

In addition, it is important to increase the number of metacognitive reading-oriented studies in education programs. The fact that reading motivation has a mediating role between the two variables shows that it is a variable that should be taken into account by researchers who will study in the fields of critical reading self-efficacy and metacognitive reading. Since the individual should have reading motivation from primary school to every period of adulthood, teachers and families should be informed and educated about this issue.

It can be ensured that the research is carried out by making comparisons with preservice teachers studying at different universities and different departments of education faculties, and by providing a better comparison of the results, solutions can be produced to eliminate the differences. In addition, when the literature on the subject is examined, it is seen that more quantitative studies have been carried out. In order to increase the depth of the subject discussed, it can be supported by qualitative studies. By increasing the number of lessons and course hours for reading in the curriculum of education faculties, which fulfill an important function in educating the teachers of the future, both an advantage can be gained in teacher training and the way for preservice teachers to gain better reading skills in their professional lives can be opened.

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The Impact of Emergency Online Learning on D/Deaf College Students' Experience of Social Isolation, Self-Efficacy, and Well-Being

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The Impact of Emergency Online Learning on D/Deaf College Students' Experience of Social Isolation, Self-Efficacy, and Well-Being

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Abstract

During the 2020 COVID-19 pandemic, many universities in the United States converted face-to-face classroom teaching to remote, online based learning formats. Gallaudet University was among these universities and faced particular challenges due to the need for visually accessible classrooms for d/Deaf students. Because college students are primarily made up of early and emerging adults, and d/Deaf college students have been shown to have better academic success when social connection is fostered, the current study sought to determine how d/Deaf students at Gallaudet University were emotionally impacted by the change to online learning during the COVID-19 pandemic in 2020. The research question for this study was: How did the COVID-19 pandemic and subsequent emergency switch to online course participation influence college students' experience of well-being, self-efficacy, and loneliness? Results indicated that overall, d/Deaf students at Gallaudet university had positive emotional adjustment during this transition, despite challenges. Discussion describes within-group differences by age and how the University supported students and the campus community to encourage this positive outcome.

Introduction

The COVID-19 pandemic affected university operations during the year 2020 throughout the United States. Face-to-face classroom teaching was often converted to online platforms including Zoom or Blackboard, with varying impacts on students' academic and social experiences (Crawford, et al., 2020). College students are usually made up of primarily individuals who are in the emerging and young adult phases of development, a time characterized by instability and exploration in terms of identity, education, career, and social relationships (Arnette, 2000; Konstam, 2016). It is therefore important that college students are given opportunities to socialize in order to facilitate the development of an adult identity and independence, whether through online or face-to-face interactions on campus.

Social connection is all the more important for d/Deaf college students who may face barriers to communication, and therefore socialization, in mainstream college environments even with interpreter support (Foster, 1988; Stinson, Liu, Saur, & Long, 1996). In the current article, to avoid presumption of an individual's personal cultural identity, the capitalized (D)eaf (referring to a cultural identity) and lowercase (d)eaf (meaning physical hearing

loss) will be incorporated by using d/Deaf to describe the population of d/Deaf college students in the study.

Gallaudet University is one the few colleges in the United States that creates a space for young adults in college to study and socialize in a culturally and linguistically immersive environment. In the fall semester of 2019, there were approximately 1,722 students enrolled at Gallaudet University, including undergraduate, graduate, professional certificate, and non-degree seeking students (Gallaudet University, 2020). Gallaudet University has a primarily face to face classroom model with visually accessible classroom and campus designs. This is in line with the university's bilingual mission which emphasizes the accessibility of both English and American Sign Language (Gallaudet, 2007), which can be challenging in primarily written, asynchronous online courses, or those which do not occur in the same place or time. In the academic year 2018-2019, 1404 face-to-face comprised the majority of the total 1629 courses offered by the University. Only 186 courses were fully online and an additional 39 were hybrid courses (Gallaudet, 2020).

In the face of the COVID-19 pandemic, Gallaudet University along with many other universities in the Washington, D.C. metropolitan area was required to convert all courses during the spring and summer 2020 semesters into fully online formats (Crawford, et al, 2020). While some courses were already offered online, a majority of the courses were converted to Zoom-based teaching formats; students were asked to return home and to vacate campus in the interest of safety. Face-to-face social activities on campus were also converted to online format or cancelled.

In the predominantly face-to-face, linguistically accessible environment at Gallaudet University, there is a great emphasis placed on social connection, community, and interpersonal support. Because of the conversion to online learning, this environment was markedly different, creating the possibility for gaps in these types of connections and support for students. Further, social distancing constraints during 2020 led to an inability of students to participate in social activities on campus such as sporting events, graduation, and other opportunities for ASL rich environments.

Because these changes led to a need for reduced in-person social connection, and the literature emphasizes the need for socialization among college students, particularly those who are d/Deaf, there was a concern that this reduced social interaction, or social isolation, would lead to an affective experience of loneliness and reduced mental well-being. Further, given the online learning platforms, it was unclear how students would feel about their ability to learn and integrate their coursework effectively.

Literature Review

Emerging and young adults, (i.e. those between the ages of 18-25 and 26-35, respectively) experience a great deal of exploration in romantic and platonic relationships, career and individual identities, and overall worldview (Arnette, 2006; Konstam, 2016). Social interaction is critical to development during these formative years of adulthood, which often occurs during college matriculation. Many developmental theorists have posited that identity formation occurs largely in the context of social relationships, however recently this has been expanded

to emphasize the impact of socialization on identity during emerging and young adulthood (Swenson, et al., 2008; To & Sung, 2017). In a study of community college students, Katsiaficas (2017) found social connectedness to a primary element of defining oneself as an adult. Lack of social connection, or the presence of social isolation, can have an impact on the emotional and mental well-being of emerging adults as peer relationships and the need to form non-familial bonds are particularly important during this time (Russell, et al., 1978; Swenson, et al., 2008). As college students develop a sense of identity and transition into their post-college life, peer support and social relationships are critical to overall mental health and a subjective sense of well-being, meaning having an overall positive, happy or desirable feeling about one's life and a sense of quality of life (Menvedev & Landhuis, 2018; Schnyders & Lane, 2018; To & Sung, 2017).

Few studies have examined the experiences of emerging adults who are d/Deaf and in a culturally and linguistically accessible environment, such as Gallaudet University. Deaf college students are also a diverse group which may include various cultural, racial, sexual orientation, gender, and hearing status identities (Knoors, 2016). The developmental goals of this population are similar to hearing peers, including gaining independence through employment and economic stability as well as developing lasting romantic and platonic relationships with non-family members (Lukomski, 2011). Attending a college such as Gallaudet University in Washington D.C. or the National Technical Institute for the Deaf (NTID) in Rochester, New York, create more opportunities for these social relationships to develop as d/Deaf college students in these environments have access to a fully immersive American Sign Language environment.

Language access is a critical aspect of creating social connections. Specifically, when d/Deaf college students are able to communicate with others without intermediaries, such as interpreters, social connectedness can form and students often report higher life satisfaction and well-being (DeFillipo, 2004; Lukomski, 2011). Further, during emerging adulthood the presence of these strong social bonds allows the individual to fully engage in the mastery of developmental milestones that emphasize autonomy and independence.

It is commonly known that d/Deaf individuals often experience social isolation while growing up in hearing families, attending mainstream hearing schools, and interacting with other non-signing environments (Charlson, et al., 1999; Foster, 1988; Perry, 2018; Sheppard & Badger, 2010). Social isolation is defined as "a deprivation of social connectedness… [specifically] the inadequate quality and quantity of social relations with other people at the different levels where human interaction takes place (individual, group, community and the larger social environment)" (Zevelata, Samuel, & Mills, 2014, p.5). In studies of d/Deaf college students the presence of face-to-face social activities on campus has been shown to promote a sense of overall quality of life (Defillipo, 2004), resilience (Crowe, 2018), and retention in the face of stressors (Stinson, et al., 1987).

Deaf college students have shown to have similar reports of overall well-being as hearing peers (Crowe, 2018; Meyer & Kashubeck-West, 2011). Further, having access to and the support of on-campus resources such as tutors, peers and faculty has been shown to influence academic success, confidence in self-efficacy, and positive relationships on-campus (Albertini, et al., 2011). College students feeling connected is clearly an important overall element of the college experience, particularly for d/Deaf students who may have faced linguistic and social

isolation in the past. This makes online learning more tricky in universities which serve a primarily d/Deaf population. While some studies of hearing college students have shown that a mixed online and face-to-face course curricula can be beneficial to more tech-savvy students, this experience may not always be transferable to d/Deaf college students given the emphasis on social connection in the college environment as it relates to well-being and retention (Defillipo, 2004; Shea & Bidjerano, 2014; Stinson et al., 1987). In a dissertation on d/Deaf college students' social identities in mainstream online learning environments, O'Dell (2019) found that in asynchronous discussion boards, d/Deaf students can form social connections when there is substantial opportunity for emotional expression actively facilitated by the instructor and engaged in by all members of the discussion board. However, the study also found that students had mixed perceptions of online learning as compared to face-to-face classrooms due to the higher potential for social isolation.

The use of other modalities such as YouTube, Zoom, and Google Meet, among others, could potentially meet d/Deaf college students' desire for social connection in the classroom. Deaf emerging adults who report a mixture of both online and offline friendships show increased social connection and an overall higher sense of well-being (Blom, Marschark, Vervloeb, & Knoors, 2014). Additional study is needed to determine which specific online education modalities enhance both the academic and social experiences of d/Deaf college students.
In March of 2020, Gallaudet University was mandated to convert all face-to-face courses to online instruction; students were required to move out of the dorm living environments. This is not unprecedented in academic history; however, the length of time and scale of the impact of the COVID-19 pandemic has been substantially higher than in the past. For example, the H1N1 influenza, or swine flu, epidemic in the United States forced several universities to close during the academic year 2008-09 due to student safety issues. In the case of the swine flu, the university communities adapted college operations, which resulted in students ultimately gaining relational trust in the academic institution. Communication with university administration during the crisis helped students to adjust to the new operations and health promotion procedures (Kim & Niederdeppe, 2013; Wheaton et al., 2012).

The COVID-19 pandemic has had large scale impacts on social connectedness in the United States due to the need for social distancing in order to reduce the spread of infection. How college students emerge from a crisis such as this largely depends on their ability to retain some social connection through which to make meaning of the negative life event. When emerging adults are able to have social connection in the face of challenges, they are more likely to be able to make meaning of the situation and experience positive growth (Gutierrez & Park, 2015).

The presence of face-to-face learning environments is important to d/Deaf emerging adult college students' connections to social relationships and communities, which can influence well-being and sense of social isolation. Therefore, the current study seeks to investigate experiences of d/Deaf college students at Gallaudet University with regard to social isolation, well-being, and psychological, social, and cultural effects as a result of the shift from face-to-face classrooms to fully online learning during the COVID-19 pandemic. Serving this purpose, the following four research questions guided this study:

1. What were students' perceptions about switching from traditional learning to fully online education

during the pandemic?

2. Were there significant differences between students' perceptions of ease with switching to online education and scores on well-being, loneliness, and self-efficacy during the pandemic?
3. Were there significant differences between students' ages and scores on well-being, loneliness, and self-efficacy during the pandemic?
4. What feedback do students have about the process of switching from traditional learning to online learning during the pandemic?

Method

Participants

The sampling frame included all students currently enrolled at Gallaudet University totaling 1,523 (Gallaudet University, 2020). The sample included 84 d/Deaf, hard of hearing, and hearing college students. There were 65 self-identified d/Deaf students, which comprised 77.4% of the sample, followed by 10 hard of hearing students (11.9%), and nine hearing students (10.7%). There were two d/Deafblind students (2.4% of the sample). The sample included 49 (58.3%) female students and 33 (39.3%) male students; two students (2.4%) identified as non-binary. The majority of students were between the ages of 18 and 34 years old (n = 74; 88.1% of the sample). Most were Caucasian (37; 44.0%), followed by Latina/o/x (17; 20.2%), African, African-American, or Black (14; 16.7%), Asian or Asian American (9; 10.7%), and biracial (7; 6.7%). The majority were from the United States (72; 85.7%). Most were undergraduates (52; 61.9%) followed by either master's level students (30; 35.7%) and doctoral students (1; 1.2%).

Measures

The questionnaire invited students to answer questions related to their academic and life experiences and coping strategies as a result of the COVID-19 pandemic. The survey instrument included 25-items, including three open-ended questions that asked participants about their best and most challenging experiences as well as one-item for additional comments.

Demographics

Demographic variables included: academic class rank, race/ethnicity, geographic location of primary home, age, employment, hearing status, disability (i.e., d/Deafblind), gender identity, first knowledge about the spread of COVID-19, reactions and experiences to emergency online teaching, academic performance pre- and during the pandemic.

Well-Being

Well-being was measured using four-items that asked participants to rate their levels of happiness over the spring semester in 2020: lowest level of happiness, highest level of happiness, general happiness, and level of happiness

at the present time. Participants ranked their happiness on a Likert scale ranging from 1 (extremely unhappy) to 9 (extremely happy) (VanderWeele, et al., 2020). Though the author of the scale does not indicate the cut-off scores, the researchers used the following cut-off scores: Unhappy (1 - 3); neither happy nor unhappy (4 - 6); happy (6 - 9). Cronbach's alpha was used for comparisons of the reliability of the four-items together. Cronbah's alpha for the four-item scale was .617. The first item, "over the past semester, what is the LOWEST level of happiness did you experience?" performed poorly, so it was removed from the scale. Thus, the remaining three-items were used to measure well-being and yielded a Cronbach's alpha of .771.

Self-Efficacy

Self-efficacy was measured by the General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995). This scale was designed to measure an individual's coping ability with daily living. It is a 10-item instrument with Likert scale responses from 1 (not true at all) to 5 (very true). Respondents respond to statements about how well they cope with problems, such as "I can always manage to solve difficult problems if I try hard enough" and "I know how to handle unexpected problems." Higher scores indicated perceived higher general self-efficacy. Cronbach's alpha for the scale ranges from .76 to .90 (Schwarzer & Jerusalem, 1995). Reliability statistics for this administration was .89.

Loneliness

Isolation was measured using four items from the UCLA Loneliness Scale (Russell, et al., 1978). This scale is designed to measure one's subjective feelings of loneliness and social isolation. Respondents use a Likert scale to rank responses from often to never. The scores are added: Not lonely (0 - 2), moderate loneliness (3-8), severe loneliness (9+). Four items were selected from this scale based on their applicability to this particular study and to limit the length of the questionnaire. Cronbach's alpha was used to assess the reliability of the subscale and compare with the alphas for the entire measure. The four items asked respondents to rate their levels of: loneliness, feeling left out, isolation from others, and lacking companionship. The Cronbach's alpha of the full 20-item scale ranges from .89 to .94 (Russell, et al., 1978). Cronbach's alpha for this administration was .88.

Procedures

After IRB approval, potential respondents were electronically sent consent information and asked to click "next" if they agreed to participate. Recruitment occurred using email, campus electronic newsletters, and social media posts. No identifiable information was collected. Data were collected and stored in an encrypted software platform during the Spring, Summer, and Fall semesters of 2020.

Results

Student Perceptions of Switch to Online Education

In March 2020 after spring break, Gallaudet University switched from in-person classes to fully remote classes

taught online. The majority of students (n=83, 99.8%) learned of the pandemic between January and March 2020. Students' approvals of this switch were almost evenly split between approving the decision (n = 31; 36.9%), neither approving nor disapproving (27; 32.1%), and disapproving (26; 31.0%). A majority of the students (n = 40; 47.7%) reported that the transition to online classes was difficult, followed by 28.6% (24) who found the transition easy; less than a quarter of the students reported the transition as neither easy nor difficult. Similarly, the majority of students (n = 36; 42.9%) found that classes were difficult after transitioning to the online system. Only 23.8% (20) of the students reported that the online classes were easy. Despite difficulty with transitioning to online learning and taking the classes themselves, nearly 93% (n = 78) of students reported that they passed their classes. The majority of students (67; 79.8%) were satisfied with their academic performance prior to the pandemic and switch to online classes. Similarly, 73.8% of the students (n = 62) reported satisfaction with their academic performance during remote learning.

Well-being, Self-Efficacy, Loneliness, and Support

Students reported high levels of self-efficacy and well-being. Loneliness scores increased during the pandemic compared to prior periods. See table 1 for the means and standard deviations of the dependent variables.

Table 1. Means and Standard Deviations for Dependent Variables

Measure	M	SD	Indications
Self-efficacy	3.58	.63	Students felt they were able to handle problems effectively.
Loneliness (pre-COVID)	2.36	-.93	Students rarely felt lonely prior to the pandemic.
Loneliness (post-COVID)	3.48	1.02	Students felt increased loneliness during the pandemic.
Well-being	5.25	1.23	Students reported feeling happy during the pandemic and during online learning.

However, correlation coefficients comparing pre- and during-COVID loneliness (Cole, et al., 2011) were nonsignificant indicating that students did not report increased levels of loneliness after switching to full-online education. Finally, the mean score for support was 3.13 (SD = .96) indicating that students felt they had social support at least sometimes or more often during the remote learning period.

Inferential Comparisons

An ANOVA was performed comparing the variable "difficulty with transition to online classes" with the dependent variables (i.e., well-being, self-efficacy, loneliness, and support). See table 2 for comparisons.

Table 2. Analysis of Variance

Measure	Df	F	η^2	P
Self-efficacy	4, 78	2.118	.792	.086
Loneliness	4, 79	4.285	3.885	.003*
Well-being	4, 79	2.092	3.030	.090

Bonferroni post-hoc tests indicated that those who found the transition to online classes very easy, had lower loneliness scores (p = .01). The variable age was dichotomized into two categories: 18 - 24 years vs. 25 years plus in order to make a more meaningful comparison between age and well-being scores. Results indicated there was a significant difference in well-being scores on age (t = 1.917, 82, p = .05). Those who were between the ages of 18 and 24 years had higher well being scores (M = 5.52, SD = 1.17) compared to those who were 25 years or older (M = 4.73, SD = 1.52). Other post-hoc comparisons with the dependent variables were nonsignificant.

Open-ended Feedback from Students

There were two open-ended questions at the end of the survey that asked students about the most rewarding and most challenging parts of taking online classes during the pandemic. Individual open-ended answers were categorized into themes as they emerged in the data. Student quotations that summarized the particular issues in a particular theme were extracted and used here.

Rewards

Student comments revealed that they found the online learning experience to have benefits. One of the most frequent comments was related to flexibility in their schedules. Students enjoyed not having to commute to campus, being home with their families working at their own pace, avoiding the risk of COVID infections, and working independently. Many commented that the professors were flexible with assignment due dates and were better able to schedule appointments around the students' needs. Another comment frequently written was related to the technology that Gallaudet University was able to provide. Students and faculty used Zoom for online instruction. Students wrote that they appreciated being able to continue their studies, interact with their classmates and professors. Professors were better able to meet with students individually with the available resources. Some students commented that because they were already familiar with Blackboard, the University's online learning management system, they were able to easily integrate the Zoom platform into their learning routines. Below are a selection of student comments:

> *I did not have to deal with the risk of being on campus. It was a clear decision and I was able to move home to help my family when we all lost our jobs.*
>
> *I liked not having a long commute and being able to get more sleep, which, in turn, allowed me more*

> *time to attend to my studies.*
>
> *I liked not having to wake up early in the morning. The recorded Zoom lectures allowed me to review the material over and over until I understood it. I could take notes without missing information and used Internet sources to assist in my learning process while in class.*

Challenges

Students reported a number of challenges with online learning. Connection, both interpersonal and technical, posed many challenges. Many remarked that the interpersonal relationships between students were often difficult because of the physical distance and inability to interact and socialize. Students found that using the technology presented unique challenges to full-participation in class. As one student wrote:

> *There was less interaction and discussion in and out of class. It was harder to follow classes, especially with accidentally switching back and forth between speakers and [technology] freezing. Assignments were less clear; concepts were less clear. I felt like I was teaching myself, especially in the two classes that didn't meet at all on Zoom. It was harder to feel focused, motivated, productive, and to stick to a schedule.*

Some students remarked that they could see that the faculty were overwhelmed with the rapid transition to online learning. Lectures and assignments were not always well-prepared for the quick switch to remote learning. As one student commented:

> *We didn't have enough time to fully transition to online [learning] and change the lessons around the lessons to make them easier online.*

Several students found that their home lives were filled with other distractions, such as other family members being around in the same household, family members contracting COVID, being served eviction notices, changing residences, and having unreliable and disruptive Internet connections. In addition to focusing on their studies, they often found other challenges in their lives that needed their attention, such as finances, relationships, and health issues.

Discussion

In the spring semester of 2020, Gallaudet University converted face-to-face courses and University activities to distance learning platforms as a result of the COVID-19 pandemic. Students had mixed reactions about this decision. Their reactions were almost equally split between feeling negative, neutral, or positive about the change. Despite the mixed approval of the conversion, a large segment of students reported that the transition was difficult (47.7%) suggesting that while students may understand the necessity of converting to online learning for safety reasons, this does not reduce the challenging nature of a mid-semester course format change. Older students (25+)

were found to have lower well-being scores than those students between the ages of 18-24, suggesting that age may play a role in how students adapt to not only the online environment but the abrupt and unanticipated change in course format. Specifically, as d/Deaf emerging adults have been shown to have positive experiences with online socialization, their well-being and social connectedness may have been less impacted than older students (Blom, et al. 2014).

According to participants, the University was successful in providing technology support, flexibility, and social support for students. Upon determination of University-wide transition to distance learning, Gallaudet administration implemented a COVID-19 task force, which included not only health-related updates and monitoring, but also an emphasis on faculty and student support in online learning. Technology service support was increased for faculty and students, including real-time troubleshooting via Zoom to allow for face-to-face, ASL-based communication (Gallaudet University, 2020). Technology support was one area where students reported feeling particularly supported including access to Zoom for direct communication in faculty meetings, instruction, and social events- all of which allowed students to have increased engagement in social interactions with others, thereby reducing loneliness.

While students stated that online course learning was harder due to challenges in personal class participation, internet instability and environmental distractions at home, a majority of students in the study were found to experience a strong sense of self-efficacy and overall well-being during the pandemic and online learning. Further, a majority of students (73.8%) expressed that they felt good about their academic performance during the pandemic and almost all (93%) of these students passed their classes. This stability in students' sense of self-efficacy and well-being is likely due in part to the increased support provided by the University administration, technology services, student support services, and faculty. In qualitative responses, students reported that professors, while sometimes less prepared due to the rapid transition to online learning, were generally flexible with assignment due dates and were responsive to student needs, including regularly scheduled individual meetings. This flexibility allowed for students to fit their home schedules to the needs of academic performance and have the ability to work at one's own pace.

Students who reported a harder time with the transition to online learning were found to have higher levels of loneliness prior to the transition. Qualitative reports from students indicated that interpersonal relationships were more challenging during this time due to social distancing and geographic location. Challenges in the area of social relationships are significant during this period of development. Specifically, young and emerging adult identities are shaped by social connection and positive social relationships during college have been shown to increase resilience, retention, and sense of well-being for college students (Defillipo, 2004; Stinson et al., 1987). Because University activities, such as graduation and sporting events, were converted to online or cancelled during this time, students had less opportunities for face to face social gatherings (Gallaudet University, 2020), however most students in the emerging adult age range (18-24) scored high in well-being and social connectedness during the pandemic. In fact, most students in the current study reported that they had social support at least some of the time or more often during 2020, suggesting that social needs were being met despite social distancing challenges. Asynchronous learning has been shown to be less accessible for d/Deaf college students, particularly as it relates

to social connection (O'Dell, 2019). This may be related to why older students experienced lower well-being scores as compared to younger students who may be more accustomed and comfortable with online-based social interaction.

Zoom, Kaltura, YouTube and other visually accessible platforms increase the ability of students and faculty to interact using ASL in distance classrooms. Zoom, using a synchronous online class structure, was the primary format used by Gallaudet University when face-to-face classes were converted to online; this may contribute to the positive experiences of students despite the challenges associated with the pandemic. Students enjoyed not having to commute to campus and felt that, by providing online learning alternative formats during the pandemic, their health and safety were valued by the University. Gallaudet University communication with students during the early months of the pandemic was frequent, and past research has shown that academic communication is important in students' feeling that their safety was valued by the university. As in the case of the swine flu in 2008 and 2009 when universities were closed as a result of the health crisis, academic communication techniques and health promotion procedures ultimately led to students' positive views and trust in the universities themselves (Kim & Niederdeppe, 2013). Academic institutions are charged with not only the academic development of college students, but with providing mental and emotional support during this important phase of life.

There were several strengths and limitations to the study methodology. The adjustments to University instruction and learning occurred because of the immediate risk to health and safety of the students, faculty, and staff because of the COVID virus. A strength for this study was that these circumstances for evaluation of emergency emergency measures were unprecedented. It allowed the researchers to evaluate the emotional and psychological impact of COVID and its effects on learning. Because students were familiar with using online learning, the use of an online survey fit well in the academic context. However, one concern was the low response rate of students (approximately 6%). The lack of responses may indicate that students were overwhelmed and fatigued with online activities. Another limitation was the implementation of written standardized instruments to deaf participants. Chronbach's alpha estimates have been used to estimate reliability of a given psychological instrument with deaf individuals (Craig, et al., 2019; Crowe, 2021; Penacoba, et al., 2020). Though the reliability statistics of the instruments yielded adequate reliability, there should be caution when generalizing results to a population for which an instrument is not normed.

Though the COVID-19 pandemic has had a large impact on University operations including course conversion to distance formats, students have been resilient and able to thrive in an online environment. Most students did not see a decline in academic performance and felt that the faculty were more flexible and supportive of students during this time. It appears that students at Gallaudet University did not experience an increased amount of loneliness, and overall felt happy and capable despite the mid-semester course format change to distance learning. Other universities in the United States may have varying student experiences of the impact of the pandemic on the college experience, but Gallaudet University has a unique population of students who make up the campus community. The Gallaudet community has shown that even in the face of a pandemic crisis d/Deaf college students are able to find a way to connect, learn, and thrive.

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The Effect of the Family Education Program Developed for Families with Children with Autism Spectrum Disorder on Parents' Family Empowerment Perceptions and Participation

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The Effect of the Family Education Program Developed for Families with Children with Autism Spectrum Disorder on Parents' Family Empowerment Perceptions and Participation

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Abstract

It is known that formal and informal educational support resources for what parents can do about the development of their children and how they can cope with the difficulties encountered after diagnosing individuals with ASD are insufficient. Therefore, this research was conducted to evaluate the effect of the education program developed for parents with children with ASD on their participation in children's education and their empowerment. A mixed method was used as a research method. In the study, the researcher evaluated the scale application, in which 452 randomly selected people participated. According to the research findings, the opinions of the research participants on empowering the parents of children with ASD varied between low, medium, and high. In general, it was seen that the perceptions of parents on empowerment perceptions, individual competence, and self-determination were at a moderate level, their participation was at a low level, while their perceptions of autism-related centers' efficacy and trust were at a high level. In addition, the participants' perceptions of empowerment of parents with children with ASD show significant differences according to gender, age, and marital status variables. According to the last finding of the study, family education programs applied to participants with children with ASD significantly affect their perceptions of their empowerment.

Introduction

A predicted 6 to 15 percent increase in the diagnosis of Autism Spectrum Disorder (ASD) each year makes ASD the fastest-growing disability globally. This worrying statistic relates to the expected increase in the cost of ASD services from $175 billion to $262 billion per year, from $200 billion to $400 billion per year (Centers for Disease Control and Prevention [CDC], n.d). Although the prevalence of autism is around 1% worldwide, it is estimated to be higher in high-income countries (Lord et al., 2020). Autism is a disorder that affects more and more people. Ideally, it can create psychological pressure on the child's family and relatives (Cridland, Jones, Magee, & Caputi, 2014).

For this reason, the family is the first and most influential institution in the follow-up of children's problems. When parents are fully aware of their child's type of problem, conscious of the complexity and difficulties of

diagnosis and treatment, rehabilitation, and medical and educational measures, they step into the starting point of many sufferings. However, families are the only institutions that play an essential role in supporting individuals with autism and ASD throughout their lives (Tint & Weiss, 2016). Therefore, parents of people with ASD often report high-stress levels and mental health problems related to the difficulties of caring for people with complex needs and navigating multiple service areas throughout their lives. Parents often have primary responsibility for care, which includes managing and educating their children's problem behaviors. In other words, family involvement is essential in the care and education of children with ASD (Benson, Karlof, & Siperstein, 2008b). Since its first definition, there has been an increasing interest in OIZ in all countries (McCabe, 2013: 511). Children with ASD generally need ongoing care and support from their parents, siblings, or other caregivers throughout their lives in order to lead an everyday life (Banach et al., 2010: 71). Considering the widespread nature of this disorder, together with its effects on individual functioning at home and at school (Iovannone, Dunlap, Huber, & Kincaid, 2003: 152), parental involvement in education planning and service delivery is crucial (Schreibman, & Koegel, 2005).

Family involvement in children's education and parent-teacher relationships are essential to support student's academic performance and have unique implications for families of children with ASD. However, most parents cannot cope with their children's problems due to a lack of knowledge about ASD and need family education programs to participate in the education of their child with ASD (Chaidi & Drigas, 2020). Therefore, the strengthening and implementation of family education programs may affect the participation of parents in the education of their autistic children. The main goal that this process (empowerment) seeks to achieve is to create optimal changes in all aspects and dimensions of life, from the individual level to family and social groups and segments of society. One of the components of achieving sustainable development is the existence of programs, policies, and multidimensional interventions to empower families with children on the autism spectrum so that this empowerment enables the active participation of individuals to ensure their cultural, social, and mental health development. Another purpose of empowerment is to increase the quality of life of parents with children with ASD and to provide social justice. This goal is to learn new ways of thinking in different situations and implement behaviors that increase satisfaction in families, individual life, and social environment. Education is the first strategy to be considered in the design, development, and implementation of this process. Education can be considered the first stage of mental preparation and awareness of people to improve their current situation and reach the desired situation (Parsons, 1991).

Over the years, parent involvement in interventions for their children with autism has increased significantly (Pascua & Dizon, 2022). Many parents now play some therapeutic role (Williams, and Wishart, 2003: 292). In this context, it is stated that the results of the research conducted by Luby, Lenze, and Tillman (2012) show that the use of interactive therapy between parents and children has significant effects on the parents of preschool children. It also helps reduce the severity of depression and parenting stress and increases the recognition of emotions. One of the most important ways to help all children with special needs grow and develop is to empower their families to provide a conducive environment (Lord and Cook, 2013: 218).

Studies in the field of caring for children with ASD indicate that more than 80% of their parents feel "stress

beyond their limits" (Bozoğlan & Kumar, 2021: 2), that it affects their children's unique needs, maintain their marital relationship and parenting skills (Halliwell et al., 2021; Myers, Mackintosh and Goin-Kochel, 2009: 671). In this context, it should be noted that a statistical study on people with autism shows that less than half of people with autism are kept in autism centers. The rest are cared for by their families (Nejad, 2019: 18). Due to the lack of resources, as well as the lack of specialists and therapists, one of the leading solutions to improve the condition of this disorder is to address the patient's problems at home, by the family. However, the critical point is that empowerment and empowerment is necessary for the family to participate effectively and efficiently in various forms of care (Graves and Shelton, 2007: 257).

In other words, given the complexity of the disease, it is vital to help parents understand these disorders and identify the needs and problems of children with autism. Properly educating children with disabilities (motor or mental) is sometimes a challenge that families cannot adequately handle. It is crucial to mobilize such families to increase, improve and normalize their performance (Dababnah and Parish, 2013: 1671). Given the widespread nature of this disorder and its effects on individual functioning at home and at school (Iovannone, Dunlap, Huber, & Kincaid, 2003: 152). Parents' involvement in educational planning and service delivery significantly impacts children's well-being (Schreibman & Koegel, 2005). Because many parents can play a therapeutic role to some extent (Williams and Wishart, 2003: 292). Family education aims to inform family members, especially mothers and fathers, and to teach specific skills. Because when the education process of the child is considered as a whole, family education is of great importance in terms of the continuity of education in this sense. In terms of the quality of the education to be provided, it is observed that the fact that the teachers are experienced and fully equipped in family education also positively affects the level of participation of the family in education (Sarı, Atbaşı, & Çitil, 2017).

Students with ASD need basic academic and daily life skills such as self-care, communication, and professional and social skills to maintain their daily lives and live independently in society. To teach these skills, teachers need to have the necessary knowledge and equipment and an attitude of constant communication and cooperation with the family (Sarı & İlik, 2014). Although the development and evaluation of early intervention approaches for ASD have increased rapidly, most research in this area has focused on children. It emphasizes these interventions' benefits to families and their parents (Wainer, Hepburn, & Griffith, 2016: 6).

Research shows that interventions that focus on educating families of children with autism have a positive impact on children in different ways and affect parents themselves. These intervention techniques include parents' knowledge of autism, parenting therapeutic skills (McConachie & Diggle, 2007), response and emotional regulation (Whittingham, Sofronoff, Sheffield & Sanders, 2009), stress levels, depression, and overall mental and physical health (McConachie & Diggle, 2007). Diggle, 2007; DClinPsy, 2010; Tonge, Brereton, Kiomall, 2006), self-efficacy (Whittingham, Sofronoff, Sheffield, & Sanders, 2009) and family functions are improved (McConkey & Samadi, 2013). For this reason, it can be said that it is essential to consider the inclusion of parents with autistic children in their treatment approaches in order to educate them in order to ensure that they have an effective process in improving their personal lives and the therapy process of their children.

One of the most important ways to help children with special educational needs is to empower their families to provide an environment conducive to their growth and development (Lord & Cook, 2013). Family empowerment is one of the essential concepts for healthcare providers. It can be defined as the process of empowering the family, acquiring skills, knowledge, and resources that allow families to improve their control and quality of life (Muljono, 2020; Rismayanti, Waloejo, & Iswati, 2020: 640), the primary purpose of which is to consider the psychological and educational development needs of families with children with disabilities (Singh, Curtis, and Ellis, 1995: 87). In fact, empowerment is defined as a process, situation, individual trait, collective trait, and a kind of attitude, perception, ability, knowledge, action, and phenomenon that can occur in a range of conditions and environments (Dardouri et al. 2021; Gentles-Gibbs & Zema, 2020). Various studies on strengthening the families of children with ASD show the positive effect of strengthening the family's condition, quality of life, self-care, and other aspects of the child with ASD (Dempsey & Keen, 2008). Empowering families can make them a center of care for autistic children, improving parent self-efficacy, parenting skills, child development knowledge, quality of family life, participation in social activities, and access to support systems. They can also meet their children's needs better than anyone else (Webster et al., 2017).

In terms of providing physical services and therapy, a qualitative study of parents of children with intellectual disabilities showed that it is necessary to empower parents to adapt to their children's changing needs (Kruijsen-Terpstra et al., 2016) because empowerment focuses on the strengths and abilities of the family, not its shortcomings (Pierce, Skorup, & Paremski Prosser, 2021). It is noteworthy that families with children with ASD are under stress, has poor mental health, have a low quality of life, and have poor coping skills (Samadi et al., 2013). The gap in the empowerment of families with autistic individuals points to the need for empowerment in them. Several studies (Chaidi and Drigas, 2020) have examined the impact of family education programs on increasing parent involvement in the education of autistic children. On the other hand, studies on parent involvement in autism centers have shown that parent involvement leads to developing and generalizing skills. There are also studies to increase family performance and health (Benson et al., 2008). The active participation of parents in the diagnosis and treatment processes of their children with developmental disorders is considered by experts an essential factor in the long-term struggle for the education of individuals with autism (Schultz, Schmidt, & Stichter, 2011).

As stated earlier, ASD is a disorder that requires intensive and continuous educational rehabilitation interventions tailored to the child's level, and the time allocated for intervention in autism centers and rehabilitation clinics is limited. On the other hand, a person with autism usually spends most of their daily time with their family. The role of parents in communicating and facilitating the rehabilitation process of a child with autism is significant and necessary. Because the psychological environment of the family, its relationship with the affected person, acceptance and awareness of the disorder can significantly impact the rehabilitation and relaxation process of a child with autism. Therefore, the purpose of this study is: 1. To evaluate the effectiveness of the participation and empowerment of families with children with autism in child education. 2. To evaluate the effectiveness of the training program for families with children with ASD.

The aim of this study is to examine the effect of the family education program developed for families with children

with ASD on family participation in the education of children. In light of this primary purpose, answers to the research questions listed below were sought.

1) What is the perception of the participants with children with ASD regarding family empowerment?

2) Do the perceptions of the participants with children with ASD regarding family empowerment differ according to their gender (parents)?

3) Do the perceptions of the participants with children with ASD regarding family empowerment differ according to their age?

4) Do the perceptions of the participants with children with ASD regarding family empowerment differ according to their marital status?

5) Does the family education program applied to the participants with children with ASD affect their perceptions of family empowerment?

Method

This research is based on causal comparison and trial models within the scope of the mixed model. In causal comparison, the studied event, phenomenon, and variables are examined by comparing them with categories or groups (McNabb, 2008). In this research, with the help of causal comparison design, the perceptions of the participants with children with ASD regarding family empowerment were compared according to gender, age, and marital status variables.

In the second stage of the quantitative dimension of the study, the effect of the family education program developed for families with children with ASD on family empowerment and participation in children's education was examined. For this purpose, following the quantitative research paradigm, a control group pre-test post-test experimental design was used. This study is a purpose-oriented quasi-experimental research that includes an experimental and a control group. The study's independent variable is the family education program, and the dependent variable is the family's participation in the children's education. Except for the sample in which the quantitative applications of the research were made, experimental procedures were carried out on two groups of families with a child with ASD with similar characteristics, with a control group pre-test and post-test trial model. The symbolic view of the experimental pattern is given in Table 1:

Table 1. Experimental Design

Groups	T1	Experimental Process	T2
(R) E	$T1_{,1}$	X (6 weeks)	$T2_{,1}$
(R) C	$T1_{,1}$	- (6 weeks)	$T2_{,1}$

E-Experimental group

C- Control Group

T1: Pre-test

X: Experimental Process

-Process in the Control Group

T2: Post-test

Before the research, the scale of perceptions of family empowerment was applied to the experimental and control groups as a pre-test. The same measurement tool was applied to both groups as a post-test. After the pre-test, the family education program (independent variable), which includes the why, how, and content of family participation in the education of children with autism was taught to the experimental group in 8 sessions. Each session lasted 60 minutes. Finally, the questionnaires used as a pre-test to evaluate the family education program's effect on parents' participation in the education of their children with ASD were re-administered to both groups as a post-test. In addition, at the end of the study, a family education program was presented to the control group to observe ethical principles. The following activities were carried out in the experimental and control groups in the study:

Curriculum, daily plans, and worksheets were prepared to be used in the research from literature and sourcebooks for the implementation of the family education program for the participants with children with ASD. Before starting the research, 2 class hours of warm-up activities were carried out to accustom the experimental group subjects to the activities prepared on the basis of the family education program. In the experimental process of the study, teaching was not carried out based on the autistic children's family empowerment training program in the experimental group, and no application was made in the control group. In the experimental group, I performed: Introductory activities, reflective diary, participation in discussions, and Teamwork activities as teaching practice based on the family education program. These activities are presented in Table 2.

Table 2. Family Empowerment Training Program for Parents of Children with Autism

Session	Subject	Contents
1	The importance of parent involvement	Introducing OSB. Communicating with parents. To make necessary explanations about the concept of parent involvement. To raise awareness of families about the importance of parent involvement in the education of children with ASD.
2	Parenting (control dimension)	To briefly review the topics of the previous session. Now examine the current level of parental involvement. To introduce parenting models for families with children with ASD. Explaining the advantages and disadvantages of each parenting model and the effects of each on the child with ASD. The relationship between improving the education of children with autism and parenting practices.
3	Educating parents about how to participate (control dimension)	To briefly review the topics of the previous session. Training on involving parents at home and school and introducing their sizes and models. Helping the child with ASD to be independent while doing their homework by providing strategies.
4	Educating parents about how to participate (control dimension)	To briefly review the topics of the previous session. To provide information on how to, directly and indirectly, assist the child with ASD in the creation of the education program. Informing parents about how to help a child with ASD with homework.
	Educating parents	To briefly review the topics of the previous session. To explain the response

Session	Subject	Contents
5	about how to participate (response dimension)	dimension and its relationship to improving a child's education with ASD. To help strengthen the competence of the child with ASD and to consider their needs in learning academic subjects.
6	Collaboration with school (response dimension)	To give a summary of the topics of previous sessions. To present important tips and different models to communicate with parents and children with ASD. Dialogue and communication status between parents and children. The status of getting information from the school about the student's educational status. Attendance at the Parents and Teachers meeting.
7	Educating parents about how to participate (Structure dimension)	Summarizing previous topics. A brief description of the build size. Making a child with ASD responsible by organizing. Recognizing time priorities and managing time in fulfilling homework.
8	Educating parents about how to participate (Structure dimension)	To provide a summary of the topics of previous sessions. Tips for providing a quiet and comfortable environment for the child with ASD. To introduce the Epstein model and other efficient models in this field. Parents' recognition of the educational assignments of a child with ASD. Summarizing the topics presented during the sessions.

Research Group

The research sample was determined by multi-stage cluster sampling. In this method, four regions were randomly selected among the regions of the Konya province. Autism centers of each region were randomly evaluated according to the statistical yearbook reports, and these people's parents were sampled. According to the results of the Cochran formula used at this stage, data should be collected from a sample of approximately 387 people. In this respect, a sample of 445 people was determined in the study. According to the Table below, which defines the demographic characteristics of the gender and age of the participants, 111 of the total sample size consists of men, and 334 of them are women. The majority of the participants are female and young age range. Of the total sample, 241 are in the 17-30 age range, 138 are middle-aged (31-45 years old), and 66 are adults (46-70 years old). Criteria for inclusion and exclusion from the study sample are as follows: 1. Having a child with autism 2. Willingness to participate in the research 3. They were not divorced or living separately four and had at least a secondary school education 5. At least one month has passed since their child went to the autism center. 6. Samples should be between 20-60 years old. The exclusion criteria are 1. They had a severe medical and psychological illness that required medication. 2. Mental and physical disabilities 3. Substance addiction. In the experimental model of the research, 60 parents, 30 of which were experimental and 30 of which were control, were included. Participants were assigned to the experimental and control groups by random assignment method. Equivalence was ensured in terms of gender, age, and educational status in the formation of the experimental and control groups. In this context, there were 15 mothers and 15 fathers in the experimental group and 15 mothers and 15 fathers in the control group. The pre-test results of the family empowerment perception scale applied to both groups before the research are presented in Table 2.

Table 2. Comparison of Pre-test Family Empowerment Perception Scores of Participants in Experimental and Control Groups

	Groups	N	$\bar{X}$	Sd	t	p
Intercommunity	Experiment	30	1.82	0.31	-1.550	0.127
	Control	30	2.00	0.59		
Individual competence	Experiment	30	3.01	0.31	-0.513	0.610
	Control	30	3.08	0.74		
Self- determination	Experiment	30	2.64	0.42	-1.131	0.263
	Control	30	2.81	0.66		
Competence of center	Experiment	30	3.87	0.49	-0.131	0.897
	Control	30	3.89	0.93		
Trust	Experiment	30	3.77	0.37	-1.122	0.267
	Control	30	3.90	0.53		
Overall Average	Experiment	30	3.02	0.08	-1.590	0.117
	Control	30	3.14	0.39		

Table 2 shows the results of the t-test performed on the pre-test family empowerment perception scores of the families in the experimental group and the control group in which the family education program was applied. According to the analyzes, the pre-test 'participation' mean score of the two groups was 1.55; the 'individual competence' mean scores were 0.513; 1,131, the mean score of 'self-determination'; 'Adequacy of the centers' mean score was 0.131; t values were calculated as 1.122 in the mean scores of the 'trust' subscale, and finally 1.59 in the total pre-test mean scores of the family empowerment scale. According to this finding, there is no significant difference between the experimental and control groups' pre-test family empowerment perception scores. Before the experimental procedures of the study, the participants in the experimental and control groups had an equivalent level of perception in the family empowerment perception scale.

Data Collection Tool

At this quantitative research stage, a Likert-type scale was developed to measure the parental empowerment perceptions of participants with children with an autism spectrum disorder. This measurement tool is called the 'Perception of Family Empowerment' scale. During the development of this scale: 2. Writing the items of the empowerment questionnaire for families with autistic children and evaluating the validity of the empowerment questionnaire for families with autistic children. 3. Evaluation of the reliability of the empowerment questionnaire for families with children with autism. 4. Standardization of the empowerment questionnaire of families with children with autism was carried out. In the first stage of the measurement tool development process, semi-structured interviews were conducted to write scale items in order to determine the nature of the parent's perception of autism, and the grounded theory method was used for coding and data analysis. Data collection for scale items continued until theoretical saturation was reached. The questionnaire preparation follows the following steps: 1. Reviewing the theoretical foundations of autism mental disorder. 2. Interviewing the target group and coding the categories. 3. Compilation of survey items based on theoretical foundations and interviews. 4. Check

the content validity rate and index to remove inappropriate items. 5. Execution of subtraction questions about the statistical population 6. Validation of data collected from classical theory. At this stage, open, axial, and selective or selective stages of the interview text were carried out by the MAXQDA18 software to compile a scale, determine the basis of parents' perception of empowerment, and analyze qualitative data. In this way, 41 items were determined for the trial measurement tool, as seen in the Table. In the writing and selection of these items, the opinions of 3 doctoral academics from the fields of special education, measurement and evaluation, and OIZ were consulted.

The validity of the trial questionnaire, which was created in the second stage of the scale development process, was tested with content validity, face validity, and construct validity. Descriptive statistics, Pearson correlation, and Factor Analysis were used at this stage. Factor analysis was carried out in two ways confirmatory and exploratory (see Figure 1). Varimax rotation principal component model was used for factor analysis. Five factors emerged from factor analysis in this study, explaining 50.64% of the variance. Each factor explains a significant total variance, indicating a valid questionnaire (first factor 14.76%, second factor 11.57%, third factor 9.78%, fourth factor 8.55%, and fifth factor 5.96%). In addition, the Cronbach Alpha coefficient for the whole scale was calculated as .874. The concordance values of the scale as a result of confirmatory factor analysis are given in Table 3.

Table 3. Compliance Indicators of the Scale

Model Fit	df	Absolute indicators		Comparative indicators		Affordable indicators	
Statistical title	df	X2	P-Value	CFI	TLI	RMSEA	PRATIO
Amounts	362	1203.52	0/001	.961	.924	.04	0/937

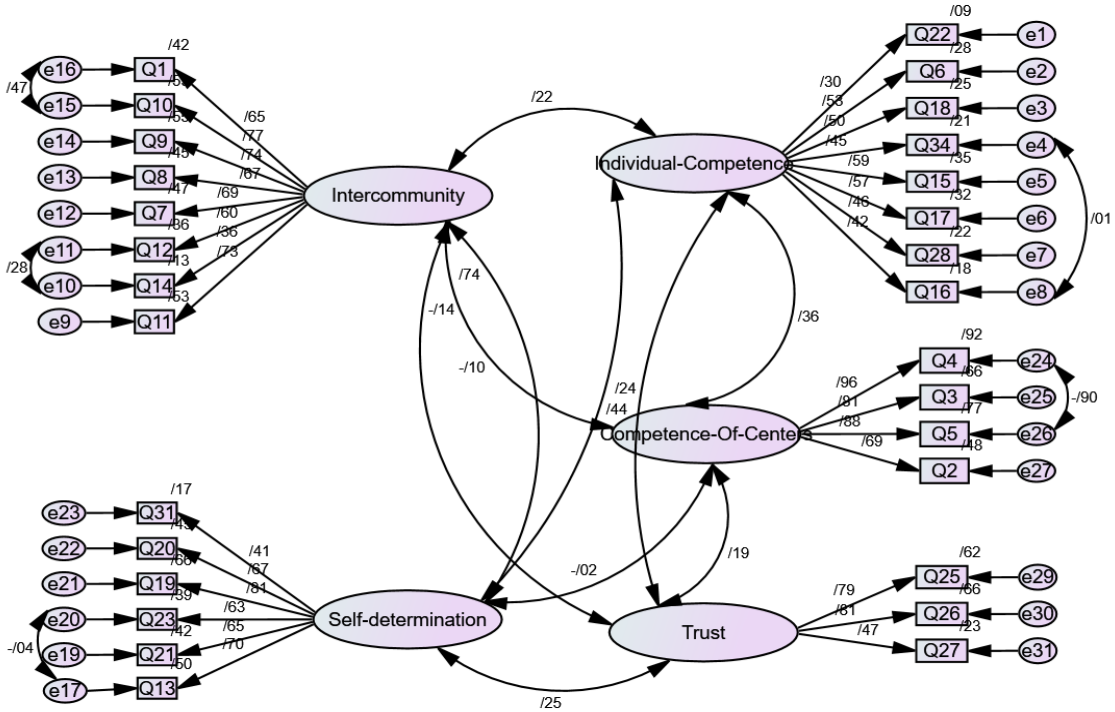

Figure 1. Results of Factor Analysis

Data Analysis Techniques

The significance level of the skewness and kurtosis statistics of all the variables in the study is between +1 and -1, indicating that the scores of the research variables have a normal distribution (Yurt & Sünbül, 2012). Therefore, it was decided to use parametric tests to test the research sub-objectives. Arithmetic means, standard deviation, and Independent Sample t-Test technique from parametric statistics were used to analyze the data obtained using the research scale.

Results

In this section, the quantitative findings of the research sub-objectives are given by considering some inferential statistical tests.

Sub-Aim 1: In the first sub-aim of the study, an answer was sought to the question of the perception of family empowerment of the participants with children with ASD.

Table 4 shows the descriptive analysis of the scores of the research participants on the scale of empowering the parents of children with ASD. When the Table is examined, it is understood that the scores related to participation, individual competence, self-determination, the efficacy of centers, trust sub-dimensions, and the general average of the scale vary between 1.00-5.00. Participation, individual competence, self-determination, the efficacy of centers, trust sub-dimensions, and overall score averages of the scale were 2.18, respectively; 3.11; 3.20; 3.91; It was calculated as 3.97 and 3.27. According to the average values obtained, it is understood that the participation of the parents is low, the perceptions of individual competence, self-determination, and the empowerment of the whole scale are at a moderate level, whereas the perceptions of the centers' adequacy and trust are at a high level.

Table 4. Descriptive Analysis of the Parent's Empowerment Scale Scores of Children with ASD

	N	Minimum	Maximum	$\bar{X}$	Sd
Intercommunity	445	1.00	4.88	2.18	0.74
Individual competence	445	1.13	5.00	3.11	0.65
Self- determination	445	1.00	5.00	3.20	0.82
Competence of center	445	1.25	5.00	3.91	0.75
Trust	445	1.00	5.00	3.97	0.68
Overall Average	445	1.78	4.75	3.27	0.46

Sub-Aim 2: In the second sub-aim of the study, do the perceptions of the participants with children with ASD regarding family empowerment differ according to their gender (parents)? The answer to the question has been sought.

In Table 5, the results of the comparison of the scores obtained from the empowerment scale of parents with children with ASD by gender can be seen. According to independent t-test analyzes, participants' perceptions of individual competence, self-determination, and efficacy of centers did not differ according to gender ($p>0.05$).

However, a significant difference was found in participation, confidence, and the general scale average according to the gender factor. According to the mean values, male parents' perceptions of participation, trust, and total parental empowerment were significantly higher.

Table 5. Comparison of the Scores obtained from the Parent Empowerment Scale of children with Autism Spectrum Disorder by Gender

	Gender	N	$\bar{X}$	Sd	t	p
Intercommunity	Female	111	2.30	0.70	1.97	0.050
	Male	334	2.14	0.75		
Individual competence	Female	111	3.19	0.70	1.42	0.158
	Male	334	3.09	0.63	1.35	
Self- determination	Female	111	3.24	0.74	0.59	0.557
	Male	334	3.19	0.84	0.63	
Competence of center	Female	111	3.91	0.75	-0.01	0.990
	Male	334	3.91	0.75	-0.01	
Trust	Female	111	4.19	0.62	3.93	0.000
	Male	334	3.90	0.69	4.14	
Overall Average	Female	111	3.36	0.44	2.38	0.018
	Male	334	3.25	0.46	2.45	

Sub-Aim 3: In the third sub-goal of the study, do the perceptions of the participants with children with ASD regarding family empowerment differ according to their age? The answer to the question has been sought.

Table 6 shows the comparison results of the scores obtained from the empowerment scale of parents with children with ASD by age groups. According to the analysis performed with the F test, the participants' perceptions of the centers' efficacy and the trust subscale did not differ according to age groups ($p>0.05$). However, a significant difference was found in participation, individual competence, self-determination, and the general average of the scale according to age groups. According to the Scheffe test analysis, young parents' perceptions of participation, individual competence, self-determination, and an overall average of the scale were significantly higher than those of middle-aged and adult parents.

Table 6. Comparison of the Scores Obtained from the Parent Empowerment Scale of Children with ASD by Age Groups

	Age Group	N	$\bar{X}$	Sd	F	p
Intercommunity	Youth	241	2.27	0.76	4.52	0.011
	Middle aged	138	2.04	0.65		
	Adult	66	2.15	0.80		
	Total	445	2.18	0.74		
Individual competence	Youth	241	3.30	0.64	10.18	0.000

	Age Group	N	$\bar{X}$	Sd	F	p
	Middle aged	138	2.91	0.61		
	Adult	66	3.11	0.70		
	Total	445	3.11	0.65		
Self- determination	Youth	241	3.33	0.81	7.68	0.001
	Middle aged	138	3.00	0.80		
	Adult	66	3.13	0.81		
	Total	445	3.20	0.82		
Conpetence of center	Youth	241	3.96	0.72	1.33	0.264
	Middle aged	138	3.83	0.77		
	Adult	66	3.91	0.80		
	Total	445	3.91	0.75		
Trust	Youth	241	3.94	0.72	1.46	0.233
	Middle aged	138	3.95	0.60		
	Adult	66	4.10	0.70		
	Total	445	3.97	0.68		
Overall Average	Youth	241	3.39	0.45	8.26	0.000
	Middle aged	138	3.15	0.43		
	Adult	66	3.25	0.51		
	Total	445	3.27	0.46		

Sub-Aim 4: In the fourth sub-goal of the study, an answer was sought to whether the perceptions of family empowerment of the participants with children with ASD differ according to their marital status.

Table 7 shows the results of the comparison of the scores obtained from the empowerment scale of parents with children with ASD according to marital status. According to independent t-test analysis, participants' perceptions of participation and trust did not differ according to gender ($p>0.05$). However, a significant difference was found in the sub-dimensions of individual competence, self-determination, the competence of the centers, and the general average of the scale according to the marital status variable. According to the mean values, the sub-dimensions of individual competence, self-determination, the competence of centers, and total parental empowerment perceptions of single parents were significantly higher.

Table 7. Comparison of the Scores Obtained from the Parent Empowerment Scale of Children with Autism Spectrum Disorder by Marital Status

	Marital Status	N	$\bar{X}$	Sd	t	p
Intercommunity	Single	239	2.24	0.76	1.91	0.057
	Married	206	2.11	0.70		
Individual competence	Single	239	3.21	0.67	3.40	0.001
	Married	206	3.00	0.61		
Self- determination	Single	239	3.30	0.84	2.86	0.004

	Married	206	3.08	0.77		
Competence of center	Single	239	4.00	0.69	2.66	0.008
	Married	206	3.81	0.80		
Trust	Single	239	3.99	0.71	0.84	0.403
	Married	206	3.94	0.65		
Overall Average	Single	239	3.35	0.45	3.74	0.000
	Married	206	3.19	0.45		

Sub-Aim 5: In the eighth sub-goal of the study, an answer was sought as to whether the family education program applied to the participants with ASD affects their perceptions of family empowerment.

In order to test the current research sub-objective, the post-test family empowerment perception scores of the participants after the experimental procedures were compared based on the principles of the experimental model. The analyzes performed with the independent sample t-test are shown in Table 8. The results of the t-test performed on the post-test family empowerment perception scores of the experimental and control group participants in which the family education program was applied. The post-test 'participation' mean score of the two groups was 2.41; the 'individual efficacy' mean scores were 4.88; the 'self-determination' mean score of 4,854; 'Adequacy of the centers' mean score was 4,064; 3,498 t values were calculated in the mean scores of the 'trust' subscale, and 5,869 t values were calculated in the total post-test mean scores of the family empowerment scale. According to this finding, a significant difference was found between the experimental and control groups' post-test family empowerment perception scores ($p<0.05$). After the experimental procedures of the study, it was observed that the participants who applied family education program reached significantly higher levels of family empowerment perception compared to the participants in the control groups.

Table 8. Comparison of Posttest-test Family Empowerment Perception Scores of Participants in the Experimental and Control Groups

	Groups	N	$\bar{X}$	Sd	t	p
Intercommunity	Experiment	30	2.63	0.70	2.412	0.019
	Control	30	2.18	0.77		
Individual competence	Experiment	30	3.76	0.70	4.888	0.000
	Control	30	2.99	0.51		
Self- determination	Experiment	30	3.99	0.74	4.854	0.000
	Control	30	3.06	0.75		
Competence of center	Experiment	30	4.41	0.60	4.064	0.000
	Control	30	3.58	0.94		
Trust	Experiment	30	4.39	0.50	3.498	0.001
	Control	30	3.88	0.63		
Overall Average	Experiment	30	3.84	0.50	5.869	0.000
	Control	30	3.14	0.43		

Discussion and Conclusion

The first finding reached in the study is about the level of participants in empowering the parents of children with ASD. In general, parents' views on empowerment are moderate. On the other hand, parents' perceptions of empowerment regarding participation are at a low level, while their perceptions of the adequacy and trust dimension of the centers are at a high level. In this respect, parents of children with ASD show a high level of trust toward particular education institutions and centers, although they are inadequate in participating in educational practices. These findings are the result of studies by Cone, Delawyer, and Wolfe (1985), Köksal-Eğmez (2008), Moxley, Raider, and Cohen (1989), Schmitt et al. (2019), Sönmez (2012), Spann, Kohler, and Soenksen (2003). similar to their findings. Spann, Kohler, and Soenksen (2003) have fundamental problems and inadequacies in terms of participation in families of individuals with special needs, information exchange between parents and institutions, participation in activities within the institution in the education of the child, and the development of appropriate communication between the child and the parents. Especially families with low education levels expect all responsibility for their children with special needs from education and rehabilitation centers and have high confidence in this regard. According to Moxley, Raider, and Cohen (1989), families participate in the education of their children with autism at a low level due to reasons such as lack of education, inadequate communication with the center and educational institutions, and lack of expert-family interaction, and the home dimension of this education is insufficient.

Another finding of this study is that the participant's perceptions of empowerment of parents with children with ASD show significant differences according to gender, age, and marital status variables. Male, single or divorced, and young participants scored significantly higher on the empowerment scale. These findings are similar to those of the studies conducted by Fantuzzo, Mcwayne, Perry and Childs (2004) and Turbville and Marquis (2001). Fantuzzo, Mcwayne, Perry, and Childs (2004) found significant relationships between the participation and empowerment levels of families of children with special needs and their education levels, occupations, and ages. According to the researchers, young and educated parents are more involved in their children's education and feel competent in terms of empowerment. The differences in the perception of empowerment in this thesis, especially regarding gender, partially contradict the literature. It is suggested in the literature that women exhibit higher participation and competence. For example, Cone, Delawyer, and Wolfe (1985) found that fathers were less involved in 9 dimensions of participation than mothers in their current study examining 12 main dimensions of participation.

On the other hand, in the studies of Turbville and Marquis (2001), no significant difference was found between mothers and fathers regarding participation and empowerment. An important dimension that causes a significant difference in the perceptions of empowerment in terms of parents' demographic characteristics is the level of confidence in the efficacy of the centers. Families also need professional support in interacting and providing support to their autistic children, so they have high trust in the relevant centers (Rush & Shelden, 2011). Similarly, Kochel, Myers, and Mackintosh (2007) examined the support use and information resources of families with children with autism in terms of some variables.

In the experimental model of the study, the effect of the family education program for the parents of children with autism on the empowerment perception and participation of the families was examined. According to the study's findings, family education programs based on experimental procedures increased the empowerment perceptions and participation of parents with children with autism spectrum disorder significantly compared to the control group. In this regard, parents in the experimental group achieved higher levels of family empowerment and involvement than the control group parents. These findings are from Smith et al. (2010). Tomaszewski et al. (2020) were similar to the results of studies by Waltereit et al. (2021). The family, parent's education, and developmental history play an essential role in the diagnosis, treatment, and education process of ASD: Inclusion of the details of the child's or young person's home life, education, and family social care experiences in every autism diagnosis evaluation, education and treatment provide essential contributions in the process. Family education programs regarding all these processes affect the development of children with ASD at a high level and positively (National Institute for Health and Care Excellence, 2011). Studies on family education factors in individuals with ASD have reported the importance of family context. Mothers of children and adolescents with ASD report three times more stressful events than mothers of children and adolescents without disabilities (Smith et al., 2010). Mother's praise and positivity appear to be associated with adults having more positive trajectories from adolescence to adulthood. Family education programs carried out in the process strengthen the family cognitively and effectively and increase their children's participation in the learning-teaching processes (Woodman, Smith, Greenberg, & Mailick, 2015; 2016).

Based on the results of this research, academic and educational support can be provided to private education institutions to empower parents of children with ASD. For example, Training can be provided to increase their self-confidence. In future studies, it is recommended that this study be carried out in a larger sample and in different regions to generalize to different populations. Longitudinal studies can be conducted to test the long-term effects of education programs applied to empower parents of children with ASD.

Note

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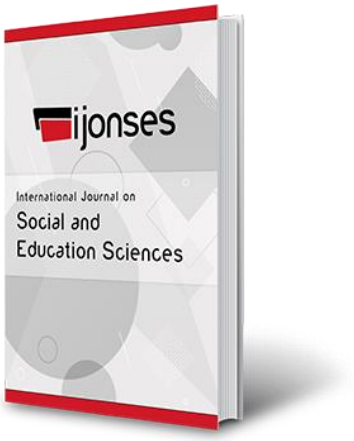

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The Founding and Development of Secret Societies and Fraternal Orders and their Influence on Modern American Society

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The Founding and Development of Secret Societies and Fraternal Orders and their Influence on Modern American Society

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Abstract

Secret societies and fraternal orders came to America with the arrival of the colonists, bringing ideals that influenced the founding of the United States. As the country grew and prospered, so did fraternal organizations, which exerted political influence, provided mutual aid for health and security to its members, and were instrumental in the growth of civic engagement. During the height of the Golden Age of Fraternity, one third of American men were members of a fraternal order. With the Depression of the 1930's, fraternal societies began a slow decline that continues to the present although the groups evolved to became more inclusive in their membership and took on community service projects in their local communities. Scholars suggest that despite efforts to adapt to societal changes, fraternal groups, like other American civic institutions, are suffering from the growing lack of civic engagement in society, which may be traced in part to the rise of digital communication. This paper follows the evolution of fraternal organizations in the United States, explores their changing roles in society, and suggests additional research to explore the future viability of fraternal groups.

Introduction

Fraternal orders in America began with settlers in New England, where many of the colonial leaders were members of early Masonic lodges. Their ideas about equality, reason, and natural laws influenced the founding of the United States. Numerous other fraternal organizations with similar ideas quickly followed. Black men, not welcomed by these first groups, began their own lodges (Trotter, 2004). Later, some organizations created auxiliary groups for women. As the country developed and became more diverse, multiple fraternal groups were formed to provide social life, status, and entertainment for members. Soon, the groups were providing benefits such as health insurance, burial costs, and payments to widows of members. Some organizations were formed for political pursuits. Others offered a business advantage while supporting charitable and community projects. Black men, denied membership in white fraternal orders, obtained charters and founded their own organizations. Women were likewise excluded from most white fraternal orders, but could join auxiliary groups. Historians agree the golden age for fraternal orders and secret societies in the United States was from the 1870s to the 1930s (Beito, 2000).

By the middle of the 20th century, most groups had expanded membership to be more diverse and representative

of their communities and were an important unifying force in civic engagement. However, fraternal groups struggled to survive the effects of cultural, economic, and technology changes, and some gradually disappeared as membership declined. Others were able to adapt as society evolved. Scholars suggest that despite these efforts to adapt to societal changes, fraternal groups are suffering the effects of the growing lack of civic engagement in American society (Putnam, 2001). The popularity of digital media may also be a factor in decreased membership (Born, 2018). This paper traces the evolution of these organizations in the United States, explores their changing roles in society, and poses questions about the future of fraternal groups.

The Creation of the Golden Age of Fraternity (1730s-1930s)

Secret Societies and Fraternal Orders Influenced the Founding of the United States

The tradition of secret societies and fraternal orders, already well established in Europe, took root in America early on. Freemasonry was brought to the colonies with the settlers from England, and Masonic lodges were established in Philadelphia and Boston in the 1730s. Many of the colonial leaders, including George Washington, Paul Revere, and Benjamin Franklin, were masons. Scholars of Freemasonry say the order was brought from England as a philosophical society associated with the liberal ideas of The Enlightenment but steeped in the traditions of the ancient stone masons' guilds. It used ritual, regalia, and secrecy to educate and improve the morals of its members (Garlinghouse & McKelvie, 2022, and Peterson, 2007). Nine signers of the Declaration of Independence and many top military leaders in the war were Masons (Freemason, 2022). Benjamin Franklin, a prominent member of the first Congress, was one of numerous Freemasons who played a role in the founding of the United States. They were intent on establishing "an independent nation based on the principles espoused by the Masonic brotherhood; principles of religious tolerance, free enterprise, limited government and the empowerment of the individual person" (Harris, 2018, para. 2).

By the 1830s, the United States had become a "nation of joiners" compared to Western European countries (Trotter, 2004). During his visit to the United States in 1831-32, Frenchman Alexis de Tocqueville marveled at the influence religious, fraternal, and civic organizations and secret societies exerted on American democracy (US Congress, 2019) and concluded "they made communities stronger, more interesting, and more engaged" (Brand, 2016, para.1). Furthermore, Tocqueville saw associations as essential to democracy (US Congress, 2019). Fraternal groups were so integral to the makeup of the country that Congress chartered the Knights of Pythias, founded in 1864 during the Civil War as an organization that practiced "brotherly love" (Mansky, 2016). Arguably, the most powerful fraternal organization in those early days of the United States was the Freemasons, with their combination of secrecy and influence. According to Jessica Harland-Jacobs, an associate professor of history at the University of Florida who studies Freemasonry, "Certainly in the 18th century and moving through the middle part of the 19th century, you could be powerful and influential without being a Freemason, but it was more likely that you would have been a Freemason" (Quoted in Silva, 2020, para. 6).

Equality of Man Was a Fraternal Goal…But Not a Reality

Many fraternal organizations based loosely on the ideals of the Masons quickly took root in America. In addition

to the Masons, American advocates of fraternal groups established an estimated 350 fraternal orders by the late 1800s, representing more than a third of the nation's adult men (Trotter, 2004, and Beito, 2000). Historian W.S. Harwood (1897) wrote in *Secret Societies in America* that there were an estimated 5.4 million members of secret fraternal orders in the United States by 1897. This number did not include members of labor unions, secret military orders, or college fraternities (Harwood, 1897).

Harwood's tally also did not include black men, who were not welcomed by these early groups. Prince Hall, an abolitionist Black clergyman from Massachusetts, attempted to join a masonic lodge in the late 1700s, but was refused. Hall then obtained a charter from the Grand Lodge in England and founded Prince Hall Freemasonry, which remains active today (Silva, 2020). Over the years, other black fraternal groups were formed, including the Improved Benevolent and Protective Order of the Elks of the World, begun in 1899 after two Black men were denied membership in the all-white Order of the Elks. For more than 100 years, that organization has sponsored scholarships, youth camps, and community service activities all over the world (Mansky, 2016).

But for many decades, only a few white fraternal groups accepted black members, and those were enrolled either in racially integrated local chapters or in separate units of the organization (Skocpol & Oser, 2004). Following the emancipation of the slaves after the Civil War, Odd Fellows lodges for blacks became even more popular and the order became the largest black fraternal group in the country (Skocpol & Oser, 2004). Trotter explains that black secret orders such as the Odd Fellows strongly influenced African American identity by creating rituals of brotherhood, providing a social safety net, and supporting social change, "including the antislavery movement of the 19th century and the modern civil rights and black power movements of the 20th century" (2004, p. 356). Black secret societies also were more likely to be multiclass and gender-integrated orders (Trotter, 2004). In addition to the well-known fraternal groups such as Masons, Odd Fellows and Elks, African Americans organized distinctive secret societies, many with biblical names that focused on religiously inspired rituals (Skocpol & Oser, 2004).

Fraternal Groups Offered Popular Practical Benefits

Joining in the burgeoning popularity of fraternal groups, in 1819 the Independent Order of Odd Fellows established a lodge in Baltimore. This group got its start in England in the early 1800s, supposedly because King George IV, a Freemason, wanted a relative to be admitted to the masons without the lengthy initiation and was denied, so George IV left the order and established the Odd Fellows (Mansky, 2016). In America, the Odd Fellows were not a philosophical society like the Freemasons, but espoused the "ideals of friendship, love, and truth" (Mansky, 2016). In addition, the Odd Fellows introduced the concept of offering insurance and benefits for widows and orphans to their members. This became a popular model for fraternal groups because it was a practical benefit to members when there were few other programs available to help families at the time (Beito, 2000).

In his report on *How Fraternal Societies Fought Poverty and Taught Character*, Beito says, "Mutual aid was one of the cornerstones of social welfare in the United States until the early 20th century. A fraternal society… existed for virtually every major service of the modern welfare state including orphanages, hospitals, job exchanges,

homes for the elderly, and scholarship programs" (2000, para.1). This system of social welfare provided by fraternal groups was firmly in place for more than a century, and the amount of benefits was substantial. In 1896, Harwood compiled a chart of 46 fraternal groups showing their membership and the dollar amounts they paid in beneficences, including "caring for the sick, burying the dead, supporting the widows and orphans of deceased members, and sums paid out to the widows of deceased members in the form of insurance" (p. 618). The grand total for that year came to almost $650 million. The Masons were first with $90 million, followed by the Ancient Order of Foresters with $80 million and the Odd Fellows with $74,000. In addition, the 70,000 fraternal lodges across the country contributed to their local economies by renting rooms, purchasing uniforms, regalia and furnishings, and hosting banquets (Harwood, 1897).

Members of successful orders relied on the benefits their membership provided and the comfort of knowing there would be help if misfortune struck. This theme that the fraternal organization served as a loving and extended family is shown in the mission statement for The Security Benefit Association (originally the Knights and Ladies of Security). The group, which was unusual in that it allowed men and women to join on equal terms, declared that its principle goal was to

> … promote the brotherhood of man, teach fidelity to home and loved ones, loyalty to country and respect of law, to establish a system for the care of the widows and orphans, the aged and disabled, and enable every worthy member to protect himself from the ills of life and make substantial provision through co-operation with our members, for those who are nearest and dearest (Beito, 2000, para. 5).

Insurance benefits were particularly attractive to African Americans since white insurance companies refused to write policies for blacks in the period after the Civil War. The black Odd Fellows, the oldest and largest black fraternal organization, offered insurance benefits, built social-welfare institutions, fostered a sense of community, and attracted both leaders and working class members. They were highly visible, organizing public parades and ritual displays (Skocpol & Oser, 2004).

Both white and black fraternal orders promoted entrepreneurship, with a strong focus on the practical. For example, The Ladies of the Maccabees, an all-white, all-female group, offered members managerial and financial skills training and also provided health benefits. In contrast to the white societies, some black groups actually established businesses. Particularly notable for its enterprising efforts, in the early 1900s the Independent Order of St. Luke founded the Saint Luke Penny Savings Bank of Richmond, established a printing plant, ran a newspaper called the *Saint Luke Herald*, and owned a department store, the Saint Luke Emporium (Beito, 2000).

Politics, Patriotism, and Protests

The majority of fraternal groups included in their creed respecting the law and the democratic process, but given the power and influence of the groups, it is not surprising that members could influence the political process (Harwood, 1897). However, the fraternal orders espoused nonpartisanship to achieve internal harmony and to widen their appeal to potential members. Beito explains that "it was standard practice for aspiring Republican and Democratic politicians to join all the leading lodges in their community. Individuals who were bitter rivals

politically could co-exist under a common fraternal banner" (para. 18). While most fraternal groups disdained partisanship, they zealously promoted patriotism, contending that patriotism and good moral character went hand in hand (Beito, 2000). But politics did intrude into the brotherhood of secret societies, and in some cases, politics and fraternal interests intersected. In 1832, the short-lived Anti-Masonic Party, which was the country's first third party, entered the political arena, running a presidential candidate who pledged to "wipe out Freemasonry" (Barlow, 2016).

The 1840s brought waves of newcomers from Ireland, Germany, and other European countries to America. They formed numerous fraternal orders based on their homelands or ethnic groups. By the mid-1800s groups of nativists, such as the Order of the Star-Spangled Banner, sometimes referred to as the Order of the Sons of the Sires of '76, sprang up in protest to the newcomers. The group's stated purpose was to "keep foreigners, naturalized citizens, and Catholics out of public office" (Beals, 1960, p. 121.). The order expanded and became known as the Know-Nothings, which exercised some political clout in American politics before it disappeared due to internal disagreements about hot button issues of the day such as slavery (Scisco, 1901). Skocpol and Oser point out that "ethnic-identified white fraternals were especially likely to be launched during the 1890s, a juncture of intense conflict between native Protestants and immigrant Catholics," (p. 382), and in the 20th century they became increasingly active in political affairs (2004). Trotter agrees, pointing out that "African Americans formed more fraternal orders than did their white counterparts, held on to them longer, and used them more readily as instruments for social change than did their white brethren. Black fraternal orders joined the fight against slavery during the 19th century and Jim Crow during the 20th century" (2004, p. 363).

Women's Place in Fraternal Organizations: Separate but Not Equal

Without question, women were mostly excluded from the influential world of secret societies and fraternal orders for decades. In the 1850s, the Masons formed a women's auxiliary group called Eastern Star, and the Odd Fellows formed the Daughters of Rebecca group for women. The first independent women's fraternal group, the United Order of True Sisters, was founded in 1846 by Jewish women. It was modeled after the Independent Order of B'nai B'rith established by Jewish men three years before (Clawson, 1986).

However, these auxiliaries, especially among white secret orders, were usually regarded as "satellites" open only to close female relatives of male members. It was common for these white fraternal auxiliaries to have both male and female leaders, while women were barred from the primary groups (Skocpol & Oser, 2004). Since the very term "fraternalism" connotes brotherhood, it is clear that main-stream white U.S. fraternal orders were organized around the principle of male identities and masculine supremacy (Clawson, 1986).

There were exceptions, of course, such as the Independent Order of St. Luke, which admitted men and women on equal terms (Beito, 2000), but for the most part the fraternal institution in the 19th century was a masculine world, mirroring the gender relationships in most sectors of society. Men might join and even have leadership roles in a women's auxiliary group, but women could not belong to the primary organization. A group that defied that standard was the Ladies of the Maccabees, which refused honorary membership to men from the parallel Knights

of the Maccabees. Bina West, the Supreme Commander of the organization from 1911 to 1948, responded to male applicants that "L.O.T.M., which means Ladies of the Maccabees, may also be construed to mean, Leave Out Those Men" (Beito, 2000, para. 10). The leadership of the Ladies of the Maccabees asserted that the all-female policy promoted self -reliance and independence. Although the group eschewed politics, it supported feminist causes, taking prominent roles in suffrage and temperance organizations, including the League of Women Voters, but they were the exception rather than the rule (Beito, 2000).

By contrast, women played a much more pronounced role in African American fraternalism, where lodges were gender-integrated and women could take leadership positions. This involvement by women, especially through the distinctive African American orders, was a natural outgrowth of the central role women played in black churches. Another key reason for this powerful female presence in African American fraternalism had to do with economic realities. Since many black women held jobs in domestic service, agriculture, and professions such as teaching, they were often the main or the sole wage earner in the family (Skocpol & Oser, 2004). These self-reliant women were accustomed to being breadwinners and were a ready market for fraternal benefits such as insurance, funeral expenses, and payments to survivors.

The Struggle to Adapt and Survive (1930s-Present)

With the Great Depression of the 1930s, fraternal societies began a slow decline that was to continue into the next century except for a brief uptick in the 1950s. This overall decline was due to an unfavorable combination of economic factors, competition and policy changes for health care and insurance, competing forms of entertainment, cultural shifts, and perhaps most damaging, the rise of the welfare state. All of these factors contributed to a transformation in the nature of fraternalism as it had existed in the United States for 200 years (Putnam, 2001).

During the Depression most of these groups suffered loss of membership due to widespread unemployment. Many lost their lodge buildings because dues were insufficient to pay their construction loans. Some groups were never able to recover and died out. At the same time, fraternal orders began to see their membership benefits being curtailed by competition and government regulations. The medical associations sought and won stronger certification requirements, which reduced the number of doctors in the country, and then attacked fraternal medical services by denying licenses to doctors who accepted contracts with fraternal owned hospitals and clinics. These medical benefits, a cornerstone of the mission of fraternal orders, were no longer available to members. Insurance, a lucrative business, became available from a variety of agencies (Beito, 2000).

Some fraternal groups saw the writing on the wall early on and realized the impact of these changes. The magazine of the Fraternal Order of Eagles printed an article in 1915 that clearly stated the ramifications. "The State is doing or planning to do for the wage-earner what our Order was a pioneer in doing eighteen years ago. All this is lessening the popular appeal of our beneficial features. With that appeal weakened or gone, we shall have lost a strong argument for joining the Order; for no fraternity can depend entirely on its recreational features to attract members" (Beito, 2000, para. 31).

The Shift from Mutual Aid to Social Welfare

As predicted, the 20th century brought far-reaching expansion in the government's social welfare role. Numerous government programs for health care were put into place. Many employers were required to provide health insurance and workers' compensation. Fraternal organizations had to look for tactics other than mutual aid to keep their organizations relevant. The forward-thinking groups realized they needed to adapt to the fast-changing society and shifting expectations.

Some groups did more than adapt, they morphed into another kind of organization to survive. For example, The International Concatenated Order of Hoo Hoo was a secret society formed in 1892 with ties to the timber industry. Because the founders of Hoo Hoo did not adopt the conventional rituals of popular fraternal groups of the time, the group was criticized as being silly and undignified for serious businessmen. The titles of its officials were taken from the Lewis Carroll's book *Hunting of the Snark*. The leader of Hoo Hoo is still called the Snark of the Universe (Tarpley, 1992).

As early as 1896, leaders were arguing for Hoo Hoo to adopt more practical reasons for existing. Over the years, Hoo Hoo added to their goals helping find employment for people wanting to work in the timber industry, and providing disaster relief and death benefit insurance to members. Local clubs were encouraged to do public service education about issues affecting the forest products industry. When these efforts were not successful, Hoo Hoo became a trade organization to promote lumber products. Although membership for women did not become available until 1993, the organization is still viable today as a trade organization but retains its rituals and traditions from its founding (Hoo-Hoo, 2022). But for every survival story, there are plenty of groups that have fallen by the wayside in the challenging times since the glory days of fraternal groups.

The 'Greatest Generation' Briefly Revived Fraternal Interest, Then Decline Continued

However, after World War II, there was a resurgence of enthusiasm for joining organizations of all types, including fraternal orders. After the war ended in 1945, the veterans came home and eagerly became 'joiners.' Like many fraternal groups, the Grand Encampment of Knights Templar, a Christian organization for Freemasons, saw its membership 'skyrocket' from the mid-40s until the mid-60s (Flores, 2014). These members of the "Greatest Generation" were less concerned about health and funeral benefits and more interested in civic activity and conviviality (Flores, 2014).

By the middle of the 20th century, the successful fraternal groups had expanded membership to be more diverse and representative of their communities and were an important unifying force in civic engagement. However, the children and grandchildren of those WWII veterans were not enthusiastic joiners. The Vietnam War brought a loss of trust in government and service organizations in general, and organizations begin to see a drop in membership. In addition, members often tended to give less volunteer time to community events, preferring to belong in name only (Flores, 2014). However, the majority of those who continued to be active in civic groups were older; Members of the generation born in the 1920s belonged to almost twice as many civic organizations

as those born in the late 1960s. Members of this "civic" generation also were much more likely to vote (Putnam, 2001).

Researcher Robert Putnam began a national debate about the decline of civic America with a series of articles and in his 2000 book, *"Bowling Alone: The Collapse and Revival of American Community*, in which he documented that Americans today "are significantly less engaged with their communities than was true a generation ago" (2001, p.5). He found that membership in voluntary organizations ranging from the PTA to fraternal groups, from the League of Women Voters to the Red Cross and from Greek organizations to labor unions has declined by as much as 50 percent over the past two to three decades. Even family life is less engaged; Americans have 43% fewer family dinners (Putnam 2001). Fraternal orders have been hard hit by this trend, which accelerated in the 21st century. Over just the past two decades, Masonic membership went down 76%, Jaycees declined by 64%, and Rotary International lost 20% (Brand, 2016). Surprisingly, Putnam found black Americans have been dropping out of both religious and civic organizations as rapidly as white Americans (2001). Those who do continue their membership in fraternal orders are less likely to take on leadership roles; over the past 25 years, there has been a sharp decline in those who are willing to serve on committees or as officers of local groups. This mirrors reductions in local activities such as attending school board meetings (Levine & Galston, 1997).

Finally, a lack of long-term loyalty is also a major reason for falling numbers in service organizations where membership was once a life-long commitment, even a multi-generational tradition. Groups such as Rotary International launch membership drives and are successful in attracting new members, but retention is the biggest problem. Rotary International averages 44,000 new members per year, but loses an average of 51,000 (Brand, 2016).

Why Are Fraternal Orders Declining in Membership?

Social scientists have launched numerous lines of study attempting to explain this growing lack of civic engagement in American institutions. Fraternal organizations, with memberships in freefall, are examining their core values and discussing how to understand and adapt to changes in society while preserving their unique history and personality. The path to that goal is not clear.

Secrecy, Race and Gender

Although it is clear that Americans simply don't join clubs or fraternal orders as often as they once did, some critics say the organizations have not kept up with changes in society. For example, many Masonic lodges still don't allow women to join, and others have struggled to attract members of color. From a high of more than 4.1 million in 1959, when about 4.5% of all American men were members, Masonic membership has dropped about 75% (Silva, 2020).

John Dickie, a historian at University College London and author of *The Craft: How the Freemasons Made the Modern World*, contends that the secrecy that once intrigued men is less alluring. "... in an age when it can take

two minutes or less on Google to find out what the Freemasons' secrets really are, I'm not sure that they can really hold that much mystique for members anymore" (Quoted in Silva, 2020, para.11). Also, there is concern that tackling gender and race issues might attract new members, but could also drive away long-time members who value those historic "limitations"(Silvia, 2020).

Moving To Professional Associations and Changing Family Dynamics

Millions of people have left labor unions and fraternal societies such as the Elks and Masons, and similar numbers have joined professional associations, which are more focused on career success and are less rooted in community involvement where men and women from varied backgrounds can talk and cooperate as equals (Levine & Galston, 1997). Putnam confirmed that the increasing number of women in the workplace over the last generation has changed the types of organizations they join and created more two-career families with less time for volunteer activities that do not include children. Single households are also more common, with associated time pressures (Putnam, 2001).

The Profound Effect of the Electronic Revolution

In his studies at the beginning of the 21st century, Putnam examined a number of other possible causes of the decline in civic engagement, including economic hard times, residential mobility and suburbanization, the cultural revolt against authority, the growth of the welfare state, and the civil rights revolution. He concluded that all of these contributed to America's changing cultural landscape, but he argues that the most damaging factor was a technological innovation: namely television. In 1950, barely 10% of American homes had TVs, but by 1959, the number had shot up to 90%. "TV watching comes at the expense of nearly every social activity outside the home, especially social gatherings and informal conversations," Putnam contends (2001, p.32). Putnam also references the work of political scientist Ithiel de Sola Pool, who predicted in 1991 that the "electronic revolution in communications technology would have profoundly decentralizing and fragmenting effects on society and culture" (Putnam, 2001, p. 34).

Since then, the electronic revolution has moved at breakneck speed, with the pervasive use of social media. Research is ongoing about the conflicting effects of social media replacing physical congregation, yet leaving people yearning for physical social connections. Civic groups that traditionally offered informative programs during their meetings have lost favor now that the internet offers a universe of information instantly, but people still crave face-to-face interaction and hands-on community service (Flores, 2014). Undoubtedly, social media platforms are profoundly affecting civic engagement. On the one hand, they support connections beyond physical barriers and give voice to diverse viewpoints without gatekeepers. However, social media also allows immediate distribution of vitriolic or harassing comments, often aimed at women and ethnic or racial minorities. Researchers fear disinformation and polarizing language may be encouraging destructive forms of engagement offline as well (Born, 2018). This trend toward online discord may offer opportunities for reviving floundering fraternal orders. Members of fraternals contend the greatest benefit of their modern-day organizations is establishing friendships outside of work and connecting with a community that isn't divisive. With polarization and division in the U.S.

on the increase, fraternal members say it's soothing to spend time with people who aren't arguing (Silva, 2020).

Michael Brand, who says he consults with nonprofits and civic organizations "when change is no longer an option, but an urgent necessity," agrees the decline of service clubs' membership in the United States is a loss of social capital and civic engagement. He points out that "potential members are constrained by lack of time. In addition, they may not see much use in an organization whose prestige and vitality is in question. It is imperative we reinvent. That may involve passing the torch and allowing an emerging generation of leaders to reinvent our clubs according to their needs. The alternative may be irrelevance and obscurity" (Brand, 2016, para. 22).

Conclusions

Secret societies and fraternal orders have played important roles in the social, political, and cultural evolution of the United States and in the lives of its citizens. During their golden age, fraternal groups initially exerted political influence and later also provided health care, insurance and support to widows and orphans before the government established national social welfare programs. Gradually, fraternal groups became more diverse in their makeup and focused on civic engagement in local communities. Understanding the role of fraternal organizations in the history of the U.S. is vital to seeing the full picture of how the country evolved.

Fraternal organizations were successful during their glory years because they provided a brotherhood structure of close ties to like-minded people; they used the allure of secret rituals; they were a path to power and influence; and they offered benefits including mutual aid for health and security. Additionally, affiliation brought social status and entertainment, and members received assistance with employment as well as a business advantage. The groups were highly visible in the community through civic engagement activities and were recognized for their contributions. However, since the 1930s, many of these inducements have disappeared or have become less desirable as society evolved. Americans who came of age during the Depression and World War II were much more involved in the life of their communities than the generations that followed. The passing of this "long civic generation" seems to be the cause of the decades of decline in fraternal groups, and by association, the decline of civic life in America (Putnam, 1995). Lightning fast innovations in digital communication have dramatically affected social discourse and have reshaped how people spend their time, especially those born since the 1960s.

Social scientists agree that civic engagement is vital to democracy and express concern about the growing isolation of the population. Although many of the traditional appeals of fraternal orders are no longer viable, studies indicate people yearn for engaging forms of personal communication. This backlash against digital media's divisive and abrasive characteristics may drive a renewed interest in face-to-face interaction and hands-on community service.

Recommendations

Given the critical role secret societies and fraternal orders have played in the history of the United States, and their ties to the vital exercise of civic engagement, the author recommends more research on this topic to explore questions such as these:

- Do fraternal orders still have an important function in society or are they tribal and divisive?
- Can fraternal organizations still play an important role in how individuals define themselves?
- Could fraternal groups offer in-person connections and engagement that is not readily available through other forms of communication?
- How could fraternal orders contribute to a revival of civic engagement in America?
- What must fraternal orders do to make themselves more appealing to current generations?

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The Relationship between Teachers' Perceptions of Organizational Ethical Climate and Accountability Tendencies

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The Relationship between Teachers' Perceptions of Organizational Ethical Climate and Accountability Tendencies

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Abstract

The aim of this study is to examine the relationship between teachers' perceptions of organizational ethical climate and their accountability tendencies. The research was carried out with 405 teachers working in the province of Istanbul. Organizational Ethics Climate Scale and Teacher Accountability Tendency Scale were used as data collection tools in the research designed in relational survey model. As a result of the research, it was found that teachers' ethical climate perceptions and accountability tendencies regarding their schools were high. In addition, it has been determined that there is a statistically positive, moderate, and significant relationship between teachers' ethical climate perceptions and accountability tendencies. Based on the findings of this study, it can be suggested that ethical and accountable behaviors should be considered in order to create a productive working environment at school.

Introduction

Ethical standards and principles established in an organization form a solid basis for the behavior of employees in the organization. In order for these principles to become a form of behavior, they must be adopted by all employees in the organization (Aydın, 2014). The fact that the employees in the organization act in accordance with the principles of ethical behavior is also closely related to the atmosphere created in the organization. A positive ethical climate to be perceived within the organization will undoubtedly contribute to the development of ethical behaviors and attitudes of employees. As a matter of fact, the existence of an ethical climate increases the job satisfaction levels, social responsibilities and commitment of the employees to the organization and thus increases their trust towards the organization (Elçi, 2005).

One of the concepts associated with ethics in the organizational management literature is accountability. When considered in terms of schools and school systems, accountability is mostly used in the context of explaining the educational activities of teachers to other stakeholders (Leithwood, Edge, & Jantzi, 1999). However, at this point, it is thought that the ethical climate perceived by the teachers in the organization may be related to their accountability tendencies. Because it would not be right to expect teachers to have a high tendency towards accountability in schools where ethical principles and values are not particularly important to the administrators and a positive ethical climate is not dominant. Based on this idea, in this study, it was aimed to examine the relationship between teachers' organizational ethical climate perceptions and accountability tendencies.

Conceptual Framework

Ethical Climate

Ethics is a philosophical science that investigates the rightness or wrongness of conscious human actions (Owens, 1982; Werner, 1993). For this reason, the area of interest of ethics is to investigate the basis of all human behavior and actions (Aydın, 2014). Ethics, which is also defined as a set of principles or values (Kılavuz, 2002), and which is also one of the basic and oldest disciplines of philosophy, analyzes morality, discusses the quality of moral concepts and judgments, systematically thinks about morality, inquires, explores the world of self-worth. It can be defined as a way of thinking that deals with the subject and includes everything that adds meaning to life, the theory of moral principles or the discipline of philosophy (Cevizci, 2008).

Considered in the organizational context, ethics are necessary for an efficient and quality work environment. As a matter of fact, some unethical behaviors that may arise in the organization can create an atmosphere of conflict within the organization, weaken the organizational culture, and reduce employee loyalty, performance and motivation (Özdevecioğlu & Aksoy, 2005). Hitt (1990) stated that some of the main factors affecting ethical behavior in organizations are "behaviors of superiors", "behaviors of individuals in the organization", "ethical practices in the industry or profession", "the existence of formal organizational policies" and "ethical climate".

Climate is defined as the way organizations regulate their routine behaviors and activities that are expected, supported and rewarded (Schwepker, 2001). According to another definition, climate is a comprehensive perception that includes some value judgments and norms and procedures existing in the structure of the institution (Silva, 2004). Organizational ethical climate, on the other hand, is a reflection of the general organizational climate and is defined as the perceptions of the organizational member about what the organization should do and how it should be done when faced with any ethical problem (Bartels et al., 1998; Wyld and Jones, 1997; Demirtas-Zorbaz & Hoard, 2019).

The ethical climate, which is of great importance for the survival of organizations and corporate success, helps employees to consider and evaluate various alternatives in the face of problems, and guides them to decide which behaviors are acceptable or not (Barnett & Schubert, 2002; Johnson, 2006). Victor and Cullen (1988), who discussed the ethical climate concept for the first time, examined the ethical climate in organizations in a five-dimensional structure: wishing for the well-being of others, instrumentality, independence, rules, laws and codes. As a result of their research, Victor and Cullen revealed that individuals learn the behaviors expected from them thanks to the ethical climate of the organization and, by behaving in this way, they adapt to their environment. In addition, researchers concluded that organizations have different ethical climate types, and these climate types affect their management style, how they will handle ethical conflicts and how they will resolve them (Forte, 2004).

Accountability

The concept of accountability, which first emerged in the Anglo-American world in the 1960s (Leithwood and Earl, 2000), derives its original basis from being a fundamental part of parliamentary democracy (Strøm, Müller

& Bergman, 2003). Batey and Lewis (1982) define accountability, which is used in a wide variety of fields, contexts and disciplines (West, Mattei, & Roberts, 2011) as fulfilling a formal obligation to a person in authority regarding goals, principles, rules, relationships, results, inputs, and expenditures. Romzek & Ingraham (2000, p. 241) defines accountability as responding to a person about an expected performance. Considering accountability from an educational point of view, many educational reforms that have been made for many years have contributed to making schools more accountable today. This situation began to emerge in the most developed countries in the 1960s and gained significant new energy towards the end of the mid-1980s. Such a massive call for accountability followed the broader economic, political and social context of which schools were a part (Leithwood & Earl, 2000).

Educational accountability, which Rothman (1995) defines as a process of school and school systems attempting to achieve their goals, is a fundamental and inevitable feature of all education systems. Concerning the economies of nations competing for stronger places in competitive global markets, many governments have turned their attention to improving the performance of all aspects of education systems (Anderson, 2005). Therefore, in the environment of globalization and international comparisons, evaluation and accountability have been the main subject of education in all developed countries (Altrichter and Kemethofer, 2015) and for more than a decade quality assurance and accountability have spread from Europe to America, Asia and Australia. It has dominated the education policy agenda in a wide geography from Turkey to New Zealand (Suspitsyna, 2010).

Accountability is a basic and inevitable feature of all education systems (Conway & Murphy, 2013). Historically, there have been three main types of accountability systems for education around the world. These; compliance with regulations, adherence to professional norms, and results orientation. Educators mostly worked simultaneously within these three accountability systems. The first system stated that educators are accountable for adherence to rules and accountable to bureaucracy. The second system is based on adherence to professional norms. Although it is neither mandatory nor desirable, there is broad consensus on existing principles and practices that promote education as a profession. The third system of accountability is result-oriented, which is defined within student learning. This system grew out of increased political participation in education. The "No Child Left Behind" regulation in the United States is an example of an outcome-based system. Educators hold themselves responsible for all three in order to balance their needs in all three systems (Anderson, 2005).

School accountability is becoming an increasingly common practice worldwide (Feng & Figlio, 2010). Because, according to educational accountability systems, schools have to offer some successful outputs against the investments made in them (Armour-Garb, 2008). In this context, in the last 20 years, countries around the world have expanded their official policies to try to maintain the accountability of schools and school systems for results. Sometimes primary and secondary schools can meet standardized tests and control systems and accountability practices. The USA is a leading example of this. In other words, people can see the place of school systems (such as PISA and TIMSS) or private colleges and universities in different rankings thanks to international comparisons (Dorn & Ydesen, 2014).

Accountability is not a new concept for schools. In the past, teachers were responsible for educating their students

well, promoting social rules and respect, and promoting cultural expectations. From this point of view, it can be clearly seen that schools are always held accountable not only for things that can be measured by tests, but also for everything they do (Sahlberg, 2010). As a matter of fact, the General Teaching Council for England (2009) found in its research that teachers are involved in different levels of accountability for different purposes. On the other hand, while teachers hold themselves mostly responsible for ensuring that their students get high scores in national tests, first of all, most teachers stated that they are responsible to their students, and some are responsible to their parents.

There are also many empirical studies that the pressure of accountability encourages the development activities of schools. According to the results of a research conducted in this context, school principals who feel the pressure of accountability are more careful about the quality expectations discussed with the inspectors, they are more sensitive to the reactions of the stakeholders to the audit results and they are more active about the improvement activities. However, some unintentional results may increase with pressure (Altrichter & Kemethofer, 2015). Because Chiang (2009) found that threats of sanctions increase schools' spending on topics such as teacher training, curriculum development, and instructional technology. On the other hand, international accountability experts state that accountability measures and practices differ according to the cultural structures and education systems of societies (Hopmann, 2008). Therefore, it should be taken into account that educators' perceptions of accountability may differ in different countries.

The Relationship between Ethical Climate and Accountability

Ethics in public administration includes a set of moral principles and values that public administrators must comply with when making decisions and conducting public services. These principles and values guide public officials in determining how decisions should be made and how jobs/roles should be done. Accountability is one of these principles and values and has a close relationship with ethics. As a matter of fact, both are a form of control and aim to improve the responsibility of individuals and institutions. However, ethics is the control and responsibility within the person; Accountability, on the other hand, refers to an external person-oriented audit process. In this framework, ethics can be defined as a form of self-accountability or internal control of the behavior of public administrators. In this respect, ethics is a sense of personal responsibility and individual internal control; accountability is the process of external auditing on public administrators (Eryılmaz & Biricikoğlu, 2011).

The ethical climate of an organization is one of the most important factors affecting the behavior of employees (Apriliaswati & Fitrianingrum, 2022; Deshpande, 1996b: 655). The ethical perception of the organization by the employees is very important as it will increase the effectiveness of the organization and the level of job satisfaction of the employees (AlKhudari, Almashaqbeh & Alkhaza'leh, 2022; Brown & Peterson, 1993; Schwepker, 2001; Singhapakdi, et al. 1995). The ethical climate perceptions of the employees affect the policy, procedure and reward systems of the organization they are affiliated with, as well as the formal or informal systems of the organization. (Barnett and Schubert, 2002).

Because organizations that lack an ethical climate or have a weak ethical climate have difficulty in gaining control

over their employees, so negligence may occur. This may lead to wrong choices and decisions (Cullen et al., 1989). Therefore, the development of an ethical perspective in the organization plays a major role in identifying and defining problems; it makes it possible to approach events from different angles and guides managers in decision-making processes (Johnson, 2009). Based on this information, in this study, it is aimed to reveal the relationship between the ethical climate perceptions of teachers working in public schools as an internal control mechanism and their tendency to accountability as an external control mechanism.

Purpose of the Research

The purpose of this research is to examine the relationship between teachers' perceptions of organizational ethical climate and their accountability tendencies. For this purpose, answers to the following questions were sought in the study:

1. What are teachers' ethical climate perceptions and accountability tendencies?
2. Do teachers' ethical climate perceptions and accountability tendencies show a significant difference according to teachers' gender, professional seniority, education level they work and the number of teachers they work with?
3. Is there a significant relationship between teachers' ethical climate perceptions and accountability tendencies?

Method

Research Model

This study, which examines the relationship between teachers' ethical climate perceptions and accountability tendencies, was designed in the relational survey model, one of the quantitative research models. Survey models are research approaches that aim to describe a past or present situation as it exists (Karasar, 2010).

Population-Sample

The population of the research consists of 14404 teachers working in Kartal (3657), Pendik (7368) and Tuzla (3379) districts of Istanbul in the 2021-2022 academic year. Krejcie & Morgan (1970) reports that it is sufficient for the sample to be in the range of 370-375, which can represent the population in the range of 10000-15000 with a 5% error rate in the sampling table. However, considering possible data losses, more data were collected. The sample of the study consisted of 405 teachers selected from the population using the simple random sampling method. Personal information of the sample group is presented in Table 1.

As can be seen in Table 1, there are 405 teachers in the sample group, 233 (58%) female and 172 (42%) male. The teachers participating in the research; 106 (26%) have 10 years or less, 173 (43%) have 11-20 years, 126 (31%) have 21 years or more of professional seniority; 113 (28%) work in primary schools, 118 (29%) in secondary schools and 174 (43%) in high schools; There are 40 or less teachers in 128 (32%) schools, and 41 or more teachers work in 277 (68%) schools.

Table 1. Frequency and Percentage Values of Personal Information

Variable	Groups	Frequency (f)	Percentage (%)
Gender	Female	233	58
	Male	172	42
	Total	405	100
Professional Seniority	10 years and less	106	26
	11-20 years	173	43
	21 years and more	126	31
	Total	405	100
Level of Education to Work	Primary school	113	28
	Secondary school	118	29
	High school	174	43
	Total	405	100
Number of Teachers in the School	40 and less	128	32
	41 and more	277	68
	Total	405	100

Data Collection Tools

The data collection tool consists of three parts. In the first part, there are questions to learn the personal information of the participants. In the second part, there is the Organizational Ethical Climate Scale developed by Cullen, Victor and Bronson (1993) and adapted to Turkish by Özen and Durkan (2016). In the third part, there is the "Teacher Accountability Tendency Scale" developed by Rosenblatt (2007) and adapted to Turkish by Cerit, Kadıoğlu-Ateş and Kadıoğlu (2017).

Organizational Ethical Climate Scale

The Organizational Ethical Climate Scale, which measures teachers' perceptions of organizational ethical climate, has five sub-dimensions, namely "socially responsible", "ruled", "beneficiary benevolent", "principled" and "productivity" and a total of 22 items. The total variance explained by the five factors of the 5-point Likert-type scale is 57.69%. The Cronbach Alpha reliability coefficient of the scale is 0.83 for the "socially responsible" sub-dimension, 0.78 for the "ruled" sub-dimension, 0.71 for the "self-interested benevolent" sub-dimension, 0.71 for the "principled" sub-dimension, and 0.72 for the "productivity" sub-dimension. The Cronbach Alpha reliability coefficient for the entire scale was reported to be .87 (Özen & Durkan, 2016).

Teacher Accountability Tendency Scale

The Teacher Accountability Tendency Scale, which measures teachers' level of accountability, has two sub-dimensions called "internal accountability" and "external accountability" and a total of 12 items. The total variance explained by the two factors of the 5-point Likert-type scale is 74.33%. The Cronbach Alpha reliability coefficient of the scale is 0.96 for the "internal accountability" sub-dimension and 0.92 for the "external accountability" sub-

dimension. The Cronbach Alpha reliability coefficient for the entire scale was reported to be .92 (Cerit, Kadıoğlu-Ateş, & Kadıoğlu, 2017).

Data Collection and Analysis

The data were collected by sending the link of the online form containing the data collection tools to the teachers who voluntarily participated in the research by the researchers. The data of 405 scales filled by the participants via the link sent were included in the analysis. The collected data were analyzed using the SPSS 25.0 program. Before starting the analysis, it was examined whether the collected data met the one-way and multi-way normality assumptions. George and Mallery (2003) state that the distribution of the data meets the assumption of normality if the skewness and kurtosis coefficients are in the range of ±2.

Based on this information, the skewness- kurtosis values of the data and Q-Q graphs were examined and socially responsible (-.28 to -.48), ruled (-.27 to -.54), beneficiary benevolent (-.19 to -.82), principled (. -27 to -.49), productivity (-.06 to -.48), organizational ethical climate (total scale score) (-.30 to -.47), external accountability (-.06 to -.39), internal accountability (-.19 to -.22) and teacher accountability tendency (scale total score) (-.03 to -.42) scores were within the normal distribution limits. In addition, it has been observed that the expected and actual values of the data are distributed close to a line with a slope of 45 degrees in the created Q-Q charts. This showed that the distribution of the data would be considered normal (Can, 2014). Therefore, parametric tests were used in the analysis of the data.

In the analyses, the significance of the difference between the means was tested at the .05 level. In the interpretation of arithmetic averages, the range of 1.00-1.79 was evaluated as "very low", the range of 1.80-2.59 as "low", the range of 2.60-3.39 as "medium", the range of 3.40-4.19 as "high" and the range of 4.20-5.00 as "very high". In the interpretation of the correlation analysis, the range of .00-.30 was accepted as “low”, the range of .31-.70 as “medium” and the range of .71-1.00 as “high” relationship (Büyüköztürk, 2011). Descriptive statistics, independent groups t-test, one-way analysis of variance (Anova), Pearson Correlation analysis and simple linear regression analysis were used in the analysis of the data.

Results

In this part of the study, first of all, teachers' ethical climate perceptions and accountability tendencies were examined and then whether the scale scores of these two variables showed significant differences according to some demographic variables of teachers. Finally, it was examined whether there is a significant relationship between teachers' ethical climate perceptions and their accountability tendencies.

In order to determine the level of ethical climate perceptions of the teachers, the arithmetic mean and standard deviation values of the whole scale and its sub-dimensions were calculated and presented in Table 2. As seen in Table 2, the average score of the teachers participating in the research on the "Ethical Climate Scale" is $\bar{x} = 3.70$. This value shows that teachers' ethical climate perceptions about their schools are at a "high" level.

Table 2. Descriptive Statistics on the Ethical Climate Scale

Score	Number of items	$\bar{x}$	Sd	Skewness	Kurtosis
Socially responsible	7	3.62	.65	-.28	-.48
Ruled	4	3.58	.80	-.27	-.54
Beneficiary benevolent	4	3.64	.83	-.19	-.82
Principled	4	3.71	.75	-.27	-.49
Productivity	3	3.72	.72	-.06	-.48
Ethical Climate Scale (Scale total score)	22	3.70	.59	-.30	-.47

In order to determine the level of accountability tendencies of the teachers, the arithmetic mean and standard deviation values of the whole scale and its sub-dimensions were calculated and presented in Table 3.

Table 3. Descriptive Statistics on the Accountability Tendency Scale

Score	Number of Items	$\bar{x}$	Sd	Skewness	Kurtosis
External accountability	5	3.77	.70	-.06	-.39
Internal accountability	7	3.38	.72	-.19	-.22
Accountability scale (Scale Total score)	12	3.54	.64	-.03	-.42

As seen in Table 3, the average score of the teachers participating in the research on the "Accountability Tendency Scale" is $\bar{x}$ =3.54. This value shows that teachers' accountability tendencies are at a "high" level. In order to determine whether the ethical climate scale total and sub-dimension scores of the teachers constituting the sample group showed a significant difference according to the gender variable, independent groups t-test was conducted (see Table 4).

Table 4. Independent Groups t-Test Results Conducted to Determine Whether Ethical Climate Scale Scores Differ According to Gender Variable

Score	Groups	N	$\bar{x}$	Sd	Se	*t* Test		
						t	Df	p
Socially responsible	Female	233	3.66	.66	.04	1.52	403	.130
	Male	172	3.57	.64	.05			
Ruled	Female	233	3.65	.79	.05	2.08	403	.038
	Male	172	3.48	.81	.06			
Beneficiary benevolent	Female	233	3.69	.84	.06	1.46	403	.146
	Male	172	3.57	.82	.06			
Principled	Female	233	3.75	.75	.05	1.13	403	.261
	Male	172	3.66	.76	.06			
Productivity	Female	233	3.70	.72	.05	-.53	403	.597
	Male	172	3.74	.73	.06			
Ethical Climate Scale (Scale total score)	Female	233	3.74	.59	.04	1.65	403	.101

As can be seen in Table 4, as a result of the independent groups t-test, socially responsible (t=1.52; p>.05), beneficiary benevolent (t= 1.46; p>.05), principled (t= 1.13; p>.05) and while there was no significant difference between the groups for productivity (t= -.53; p>.05) and ethical climate scale total score (t= 1.65; p>.05); for the ruled sub-dimension (t= 2.08; p<.05), the difference between the arithmetic means of the groups was found to be significant. The average of female teachers was found to be significantly higher than the average of male teachers. This revealed that female teachers were statistically significantly more rule-bound than male teachers.

One-way analysis of variance (ANOVA) was conducted to determine whether the ethical climate scale total and sub-dimension scores of the teachers constituting the sample group showed a significant difference according to the professional seniority of the teachers (see Table 5).

Table 5. One-Way Analysis of Variance (ANOVA) Results to Determine Whether Total and Sub-Dimensional Scores of the Ethics Scale Differ According to the Variable of Professional Seniority of the Teachers

Score	Groups	*n*	$\overline{X}$	Sd	Source of Variation	*SS*	*df*	*MS*	*F*	*p*	*Post hoc*
Socially responsible	10 years and less	106	3.71	.66	Between Groups	1.168	2	.584	1.395	.249	
	11-20 years	173	3.58	.66	Within Groups	168.306	402	.419			
	21 years and more	126	3.60	.62	Total	169.474	404				
	Total	405	3.62	.65							
Ruled	10 years and less	106	3.79	.75	Between Groups	6.884	2	3.442	5.474	.005	1-2
	11-20 years	173	3.47	.83	Within Groups	252.758	402	.629			1-3
	21 years and more	126	3.56	.78	Total	259.642	404				
	Total	405	3.58	.80							
Beneficiary benevolent	10 years and less	106	3.83	.79	Between Groups	5.653	2	2.827	4.126	.017	1-2
	11-20 years	173	3.55	.85	Within Groups	275.366	402	.685			1-3
	21 years and more	126	3.60	.83	Total	281.019	404				
	Total	405	3.64	.83							
Principled	10 years and less	106	3.90	.66	Between Groups	5.351	2	2.675	4.827	.008	1-2
	11-20 years	173	3.61	.79	Within Groups	222.806	402	.554			1-3
	21 years and more	126	3.70	.74	Total	228.157	404				
	Total	405	3.71	.75							
Productivity	10 years and less	106	3.62	.68	Between Groups	1.417	2	.709	1.360	.258	
	11-20 years	173	3.77	.74	Within Groups	209.447	402	.521			
	21 years and more	126	3.73	.74	Total	210.864	404				
	Total	405	3.72	.72							
Ethical Climate Scale (Scale total score)	10 years and less	106	3.81	.58	Between Groups	1.720	2	.860	2.489	.084	
	11-20 years	173	3.65	.60	Within Groups	138.939	402	.346			
	21 years and more	126	3.68	.58	Total	140.659	404				
	Total	405	3.70	.59							

As can be seen in Table 5, as a result of the one-way analysis of variance, the ethical climate perception levels of

teachers according to the variable of professional seniority for the ruled sub-dimension of the scale (F=5.474; p< .05); for beneficiary benevolent sub-dimension (F=4.126; p<.05); and for the principled sub-dimension (F=4.827; p< .05) the difference between the arithmetic means of the groups was found to be significant. Complementary analyzes were carried out in order to determine which groups resulted from the significant difference determined for these sub-dimensions. For this purpose, firstly, the homogeneity of variance was checked with Levene's analysis and it was found that the variances were homogeneous (For the ruled sub-dimension: L_F=1.383; p>.05; for the beneficiary benevolent sub-dimension: L_F= .236; p>.05; for the principled sub-dimension: L_F=1.450; p>.05). For this reason, the LSD test was preferred. As a result of the LSD test, it was determined that the difference found in all three sub-dimensions was in favor of teachers with 10 years or less professional experience. No significant difference was found between the groups for the other sub-dimensions and the overall scale.

A one-way analysis of variance (ANOVA) was conducted to determine whether the total and sub-dimension scores of the ethical climate scale differ significantly according to the teachers' Level of Education to Work (see Table 6). As can be seen in Table 6, as a result of the one-way analysis of variance, the difference between the arithmetic means of the groups for the productivity sub-dimension of the scale (F=4.094; p< .05) was found to be significant according to the variable of education level of the teachers. Complementary analyzes were carried out in order to determine from which groups the significant difference determined for this sub-dimension was due. For this purpose, first of all, homogeneity of variance was checked with Levene's analysis and variances were found to be homogeneous (L_F=2.379; p>.05). For this reason, the LSD test was preferred. It was determined that the difference found as a result of the LSD test was between teachers working in secondary schools and high schools and teachers working in primary schools, and it was realized at p<.05 in favor of teachers working in secondary schools and high schools. No significant difference was found between the groups for the other sub-dimensions and the overall scale.

Table 6. One-Way Analysis of Variance (ANOVA) Results to Determine Whether the Total and Sub-Dimensional Scores of the Ethical Climate Scale Differ According to the Teachers' Level of Education to Work

Score	Groups	*N*	$\overline{X}$	Sd	Source of Variation	*SS*	*df*	*MS*	*F*	*p*	*Post hoc*
Socially responsible	Primary school	113	3.70	.62	Between Groups	1.206	2	.603	1.441	.238	
	Secondary school	118	3.62	.60	Within Groups	168.268	402	.419			
	High school	174	3.57	.69	Total	169.474	404				
	Total	405	3.62	.65							
Ruled	Primary school	113	3.72	.76	Between Groups	3.292	2	1.646	2.581	.077	
	Secondary school	118	3.49	.77	Within Groups	256.350	402	.638			
	High school	174	3.55	.84	Total	259.642	404				
	Total	405	3.58	.80							

Score	Groups	*N*	$\overline{x}$	Sd	Source of Variation	*SS*	*df*	*MS*	*F*	*p*	*Post hoc*
Beneficiary benevolent	Primary school	113	3.73	.80	Between Groups	1.403	2	.701	41.008	.366	
	Secondary school	118	3.58	.82	Within Groups	279.617	402	.696			
	High school	174	3.62	.87	Total	281.019	404				
	Total	405	3.64	.83							
Principled	Primary school	113	3.80	.73	Between Groups	1.275	2	.637	1.129	.324	
	Secondary school	118	3.66	.71	Within Groups	226.882	402	.564			
	High school	174	3.69	.79	Total	228.157	404				
	Total	405	3.71	.75							
Productivity	Primary school	113	3.56	.78	Between Groups	4.209	2	2.104	4.094	.017	2-1
	Secondary school	118	3.79	.69	Within Groups	206.655	402	.514			
	High school	174	3.78	.69	Total	210.864	404				3-1
	Total	405	3.72	.72							
Ethical Climate Scale (Scale total score)	Primary school	113	3.75	.57	Between Groups	.566	2	.283	.813	.444	
	Secondary school	118	3.67	.56	Within Groups	141.093	402	.348			
	High school	174	3.68	.62	Total	140.659	404				
	Total	405	3.70	.59							

In order to determine whether the total and sub-dimension scores of teachers' ethical climate scale differ significantly according to the variable of the number of teachers in the school, independent groups t-test was conducted (see Table 7). As can be seen in Table 7, as a result of the independent groups t-test, ethical climate scale total score (t= .91; p>.05) and socially responsible (t= .88; p>.05), ruled (t= .69; p>.05), beneficiary benevolent (t= .88; p>.05) .99; p>.05), principled (t=1.52; p>.05) and productivity (t= .29; p>.05) sub-dimension scores were not significantly different between the groups.

Table 7. Results of Independent Groups t-Test Conducted to Determine Whether Ethical Climate Scale Scores Differ According to the Number of Teachers Working at the School

Score	Groups	*N*	$\overline{x}$	Sd	Se	*t* Test		
						t	Df	*p*
Socially responsible	40 and less	128	3.66	.61	.05	.88	403	.382
	41 and more	277	3.60	.66	.04			

Score	Groups	*N*	x̄	Sd	Se	*t* Test		
						t	Df	*p*
Ruled	40 and less	128	3.62	.74	.07	.69	403	.490
	41 and more	277	3.56	.83	.05			
Beneficiary benevolent	40 and less	128	3.70	.81	.07	.99	403	.324
	41 and more	277	3.61	.84	.05			
Principled	40 and less	128	3.80	.70	.06	1.52	403	.130
	41 and more	277	3.67	.77	.05			
Productivity	40 and less	128	3.73	.67	.06	.29	403	.773
	41 and more	277	3.71	.75	.05			
Ethical Climate Scale (Scale total score)	40 and less	128	3.74	.55	.05	.91	403	.364
	41 and more	277	3.68	.61	.04			

Independent groups t-test was conducted to determine whether the total and sub-dimension scores of the teachers constituting the sample group showed a significant difference according to the gender variable (Table 8).

Table 8. Results of the Independent Groups t-Test Conducted to Determine Whether the Scores of the Accountability Tendency Scale Differ According to the Gender Variable

Score	Groups	*N*	x̄	Sd	Se	*t* Test		
						t	Df	*p*
External accountability	Female	233	3.80	.68	.04	1.03	403	.302
	Male	172	3.73	.72	.06			
Internal accountability	Female	233	3.46	.70	.05	2.52	403	.012
	Male	172	3.28	.74	.06			
Accountability scale (Scale Total score)	Female	233	3.60	.63	.04	2.13	403	.034
	Male	172	3.46	.65	.05			

As can be seen in Table 8, there was no significant difference between the groups for external accountability (t= 1.03; p>.05) as a result of the independent groups t-test; For the internal accountability sub-dimension (t= 2.52; p<.05) and for the total score of the accountability scale (t= .34; p<.05), the average of female teachers was found to be significantly higher than the average of male teachers. This revealed that female teachers tend to be statistically significantly more accountable than male teachers.

One-way analysis of variance (ANOVA) was conducted to determine whether the total and sub-dimension scores of the teachers' accountability tendency scale differ significantly according to the professional seniority variable of the teachers (see Table 9). As can be seen in Table 9, as a result of the one-way analysis of variance, no significant difference was found between the groups for the external and internal accountability sub-dimensions of the scale and the overall scale of the accountability tendencies of the teachers according to the variable of professional seniority.

Table 9. One-Way Analysis of Variance (ANOVA) Results to Determine Whether Total and Sub-Dimensional Scores of the Accountability Scale Differ According to the Variable of Professional Seniority of the Teachers

Score	Groups	*n*	$\overline{x}$	Sd	Source of Variation	*SS*	*df*	*MS*	*F*	*p*
External accountability	10 years and less	106	3.79	.70	Between Groups	1.526	2	.763	1.573	.209
	11-20 years	173	3.70	.67	Within Groups	195.029	402	.485		
	21 years and more	126	3.84	.72	Total	196.555	404			
	Total	405	3.76	.70						
Internal accountability	10 years and less	106	3.42	.72	Between Groups	.412	2	.206	.397	.673
	11-20 years	173	3.39	.72	Within Groups	208.738	402	.519		
	21 years and more	126	3.34	.71	Total	209.150	404			
	Total	405	3.38	.72						
Accountability scale (Scale Total score)	10 years and less	106	3.58	.65	Between Groups	.210	2	.105	.257	.773
	11-20 years	173	3.52	.64	Within Groups	163.882	402	.408		
	21 years and more	126	3.55	.63	Total	164.092	404			
	Total	405	3.54	.64						

A one-way analysis of variance (ANOVA) was conducted to determine whether the total and sub-dimension scores of the teachers constituting the sample group showed a significant difference according to the teachers' level of education to work (see Table 10).

Table 10. One-Way Analysis of Variance (ANOVA) Results to Determine Whether the Total and Sub-Dimensional Scores of the Accountability Tendency Scale Differ According to the Teachers' Level of Education to Work

Score	Group	*n*	$\overline{x}$	Sd	Source of Variation	*SS*	*df*	*MS*	*F*	*p*	*Post Hoc*
External accountability	Primary school	113	3.96	.63	Between Groups	7.644	2	3.822	8.133	.000	1-2
	Secondary school	118	3.60	.71	Within Groups	188.912	402	.470			1-3
	High school	174	3.76	.70	Total	196.555	404				
	Total	405	3.77	.70							
Internal accountability	Primary school	113	3.49	.73	Between Groups	2.904	2	1.452	2.830	.060	
	Secondary school	118	3.40	.60	Within Groups	206.246	402	.513			
	High school	174	3.29	.78	Total	209.150	404				
	Total	405	3.38	.72							
Accountability scale (Scale Total score)	Primary school	113	3.69	.61	Between Groups	3.403	2	1.701	4.256	.015	1-2
	Secondary school	118	3.49	.58	Within Groups	160.689	402	.400			1-3
	High school	174	3.49	.67	Total	164.092	404				
	Total	405	3.54	.64							

As can be seen in Table 10, as a result of the one-way analysis of variance, the difference between the arithmetic averages of the groups for the external accountability sub-dimension of the scale and the total score of the accountability scale according to the level of teachers' accountability tendency levels was found to be significant.

For this sub-dimension and for the scale total score, complementary analyzes were carried out in order to determine which groups caused the significant difference. For this purpose, first of all, homogeneity of variance was checked with Levene's analysis and variances were found to be homogeneous for the external accountability sub-dimension (L_F=2.301; p>.05).

It was found that the variances for the total score of the scale were not homogeneous (L_F=3.056; p<.05). The LSD test was preferred when the variances were homogeneous, and the Dunnett C test was used when the variances were not homogeneous. As a result of the LSD test, it was determined that the difference for the external accountability sub-dimension was between teachers working in primary schools and teachers working in secondary schools and high schools, and it was realized at p<.05 in favor of teachers working in primary schools. Similarly, as a result of the Dunnett C test test, it was determined that the difference in question for the total score of the accountability tendency scale was between the teachers working in primary schools and the teachers working in secondary schools and high schools, and it was realized at p<.05 in favor of the teachers working in primary schools. No significant difference was found between the groups for the other sub-dimensions and the overall scale.

In order to determine whether the total and sub-dimension scores of the teachers' accountability tendency scale differ significantly according to the number of teachers variable, independent groups t-test was conducted (see Table 11).

Table 11. Results of the Independent Groups t-Test Conducted to Determine Whether the Scores of the Accountability Tendency Scale differ according to the variable of the number of teachers in the school

Score	Groups	*N*	$\bar{x}$	Sd	Se	*t* Testi		
						t	Df	*p*
External accountability	40 and less	128	3.72	.72	.06	-.88	403	.379
	41 and more	277	3.79	.69	.04			
Internal accountability	40 and less	128	3.35	.73	.07	-.51	403	.611
	41 and more	277	3.39	.71	.04			
Accountability scale (Scale Total score)	40 and less	128	3.51	.66	.06	-.74	403	.461
	41 and more	277	3.55	.63	.04			

As can be seen in Table 3, as a result of the independent groups t-test, there was no significant difference between the groups for the external accountability (t= -.88; p>.05) and internal accountability (t= -.51; p>.05) sub-dimensions and the total score of the accountability tendency scale (t= -.74; p>.05).

At the last stage of the study, the results of the Pearson correlation analysis conducted to determine the relationship between teachers' organizational ethical climate perceptions and their accountability tendencies are presented in Table 12. As seen in Table 12, there is a moderately positive relationship between the ethical climate scale and the accountability tendency scale (r= .701; p<.01).

Table 12. The Relationship between Perception of Organizational Ethical Climate and Accountability Tendency

		External accountability	Internal accountability	Accountability scale (Scale Total score)
Socially responsible	r	.553**	.581**	.635**
	p	.000	.000	.000
Ruled	r	.631**	.578**	.669**
	p	.000	.000	.000
Beneficiary benevolent	r	.614**	.645**	.705**
	p	.000	.000	.000
Principled	r	.626**	.598**	.679**
	p	.000	.000	.000
Productivity	r	-.026	.038	.013
	p	.605	.446	.790
Ethical Climate Scale (Scale total score)	r	.626**	.631**	.701**
	p	.000	.000	.000

*p<.05, **p<.01

After these procedures, regression analysis was performed to determine whether the ethical climate scale score predicted the accountability tendency scale score in accordance with the purpose of the research, and the results are presented in Table 13.

Table 13. Results of Regression Analysis between the Ethical Climate Scale and the Accountability Tendency Scale

Model	B	Std. E.	β	t	p	R	R^2	F	p
1.(constant)	.74	.14		5.154	.000				
Ethical Climate	.76	.04	.70	19.749	.000	.70	.49	390.034	.000

As seen in Table 13, as a result of the simple linear regression analysis performed to determine whether the ethical climate scale scores significantly predicted the accountability tendency scale scores, it was seen that the ethical climate scale was a significant predictor of the accountability tendency scale score ($F_{(1-403)}$=390.034, p<0.001). It was determined that the ethical climate scale explained 49% (R^2= .49; p<0.001) of the variance in the accountability tendency scale score statistically significantly. According to Cohen (1988; cited in Özsoy & Özsoy, 2013, p. 339), effect size results (R^2): .0196 low; .1300 medium; .2600 is indicated as the large impact value. Therefore, it can be said that the R^2 value (R^2=.49) obtained from this analysis has a great effect.

The regression equation that predicts the accountability tendency scale according to the results of the regression analysis is as follows: Accountability Tendency= (.76 x Ethical Climate) + .74

Discussion, Conclusion, and Recommendations

In the study, teachers' ethical climate perceptions and accountability tendencies were determined. It was examined whether the scale scores of these two variables showed significant differences according to some demographic variables of the teachers. In addition, it was examined whether there is a significant relationship between teachers' ethical climate perceptions and accountability tendencies.

When the teachers' scores on the "Ethical Climate Scale" are examined, it is seen that they have the highest score in the "productivity" sub-dimension, but their scores are high in general. In support of the findings of this study, the studies conducted by Demirdağ and Ekmekçioğlu (2015), Sertel (2019) and Hirase (2000) also concluded that teachers' organizational climate levels are high. As emphasized by Demir & Karakuş (2015), it can be said that the finding obtained in this study is a positive situation for the education process when it is considered that the high level of ethical climate affects the trust of the teacher and the student towards each other and teacher motivation positively. In addition, in the study conducted by Kılıç (2019), it was found that ethical climate affects organizational commitment and teacher performance positively, and in the study conducted by Topçu & Gürsoy (2022) in the sample of secondary school teachers, ethical climate positively affects individual performance.

It is seen that teachers' scores on the "Accountability Tendency Scale" are high. In the study conducted by Kandemir and Akgün (2019), which supports the finding obtained from this research, it was concluded that teachers' perceptions of accountability are high. On the other hand, teachers' external accountability perceptions are higher than their internal accountability perceptions in the study. In a similar study conducted by Erdağ (2020), it was found that teachers' internal accountability levels were higher than their external accountability levels.

There is no significant difference in scores between female and male teachers in the overall ethical climate scale and in all sub-dimensions except the ruled sub-dimension. However, a significant difference was found in favor of female teachers in the sub-dimension of ruled. From this point of view, it can be said that female teachers give more importance to rules in terms of providing an ethical climate. In the study conducted by Arslan Hendekçi & Özen (2018), the fact that no significant difference was found between teachers' ethical climate perceptions and their genders partially overlaps with the finding of this study.

According to the professional seniority variable, the level of perception of ethical climate of teachers was found to be significant in favor of teachers with 10 years and less seniority in the sub-dimensions of ruled, beneficiary benevolent and principled of the scale. Based on this finding, it can be said that teachers who are new to the profession are more sensitive to the ethical climate. Kocayigit & Sağnak (2012) conducted by the professional ethical climate perceptions of teachers according to seniority seniority of significant difference in favor of teachers with more than 20 years of professional contradiction with the finding illustrates the findings of this research.

According to the level of perception of ethical climate of teachers, it was found that the difference in favor of teachers working in secondary and high schools was significant in the productivity sub-dimension of the scale according to the variable of the educational level in which teachers work. Based on this, it can be said that the

ethical climate perceptions of the teachers working at the higher level are higher. The fact that the study conducted by Bakkal & Radmand (2019) found that the type of school does not affect teachers' perceptions of the school climate does not coincide with the findings of this study. In addition, in this research, there was no significant difference in the ethical climate scale according to the number of teachers working at the school variable.

While there was no significant difference between female and male teachers for the external accountability sub-dimension of the accountability scale; For the internal accountability sub-dimension and for the total score of the accountability scale, the average of female teachers was found to be significantly higher than the average of male teachers. The findings of the research conducted by Altıparmak (2019) support the finding of this research, and that female teachers have a higher perception of accountability. However, in the study conducted by Kandemir & Akgün (2019), it was concluded that there was no significant relationship between the gender variable and teachers' perceptions of accountability.

In this research, there was no significant difference between the external accountability and internal accountability sub-dimensions of the scale and the overall scale according to the professional seniority variable of teachers' accountability tendencies. In a study conducted by Kandemir & Akgun (2019) in parallel with the findings obtained in this study, it was concluded that there is no significant relationship between the professional seniority variable and teachers' perceptions of accountability. In the study conducted by Altıparmak (2019), it was found that there was no significant relationship between the professional seniority of teachers and their perception of accountability.

In the study, a significant difference was found for the external accountability sub-dimension of the scale and the total score of the accountability scale according to the variable of education level of the teachers. For the external accountability sub-dimension, it was determined that the difference was between teachers working in primary schools and teachers working in secondary schools and high schools, and in favor of teachers working in primary schools. No significant difference was found between the groups for the other sub-dimensions and the overall scale. In the study conducted by Altıparmak (2019), it was found that there was no significant relationship between the type of school where teachers work and their perceptions of accountability. In this study, no significant difference was found for the external accountability and internal accountability sub-dimensions and the total score of the accountability tendency scale.

As a result of the simple linear regression analysis, it was seen that the ethical climate scale was a significant predictor of the accountability tendency scale score. This result shows that the ethical climate in organizations has an effect on the tendency of accountability. In the study conducted by Altaş & Kuzu (2013), it was found that ethical climate positively affects trust in the manager and job performance. In addition, in the study conducted by Göker & Gündüz (2017), they stated that accountability in schools is effective in the formation of a strong school culture. The finding in this research that accountability is related to ethical climate shows the importance of creating an ethical and accountable environment in the formation of organizational culture in schools.

Based on the findings of this study, it can be suggested that ethical and accountable behaviors should be considered

in order to create a productive working environment at school. Considering that ethical climate perception has a positive effect on many variables in educational institutions as well as in all institutions, it can be recommended to make explanations to teachers in the context of accountability in order to improve teachers' ethical climate perceptions. It is among the suggestions to be made based on the findings of this research that school administrators exhibit a transparent and open management model as much as possible.

Notes

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Design and Implementation of the Development of a Corpus-based Loose-leaf Textbook for Higher Vocational English Learners: Using the *Cross-border E-Commerce Operations English* as an Example

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Design and Implementation of the Development of a Corpus-based Loose-leaf Textbook for Higher Vocational English Learners: Using the *Cross-border E-Commerce Operations English* as an Example

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Abstract

Current higher vocational English textbooks have limitations in providing timely work-related information, representing the nature of vocational education, preserving authenticity of text materials, and using technology to enhance textbook interactivity. To address the limitations of current higher vocational English textbooks, this study adopts corpus-based approaches to developing a loose-leaf textbook for higher vocational English, a new form of textbook that delivers timely, authentic, job-oriented content enhanced by digitalization. Upon an on-the-job investigation, this study builds CECLOTED, a corpus congruent with the typical job tasks for cross-border E-commerce operations. Based on corpus data analysis upon metrics of frequency, keyness, dispersion, collocation and colligation, this study strikes a balance between authentic text feature and linguistic complexity appropriate for higher vocational English learners. This study also develops an online learning platform coherent with the printed textbook with B/S architecture so as to present information in a ubiquitous, dynamic and interactive manner. Compared with the conventional textbook, the loose-leaf textbook which comprises learning texts, vocabulary lists, learning tasks and an online learning platform is more conducive to enhancing language proficiency and job-related skills.

Introduction

The world today is undergoing major changes unseen in a century. New scientific and technological revolution and industrial transformation are driving the rapid development of new technologies, new industries and new business models, giving birth to new occupations, and in turn spurring changes in learning contents and thus in textbooks. In December 2019, the Ministry of Education of the People's Republic of China took the lead in issuing the *Administrative Measures for Vocational School Textbooks* (Ministry of Education of the People's Republic of China, 2019a), advocating developing new forms of textbook such as loose-leaf textbook or work manual-style textbook, and the focus of this study is on the former type.

The loose-leaf textbook is deemed as a new form both for its outer and inner characteristics. Externally, the constituent pages are not glued in such textbook, but rather are hole-punched and held together, most usually, by

a ring binder so that pages can be removed, added or put back undamaged. While the outer character traits of the loose-leaf textbook can be explicitly noted, the study on the essence of it is still in the exploratory stage. Quite a few scholars (Cai et al., 2021; Huang et al., 2021; Li, 2020; Wang et al., 2021; Wu et al., 2022) have tried to explicate this new form of textbook, and they proposed, among other qualities, that typical job tasks for certain positions in enterprises should serve as the backbone of a loose-leaf textbook and the entire textbook should be oriented toward career skills and emphasis be put on reflecting the complete work process of a real job, and hence granting distinguishing features to set loose-leaf textbooks from conventional discipline-based ones.

Status Quo and Limitations

To answer the call of national textbook requirement, reform has been undertaken on textbooks for higher vocational English learners. Despite ongoing efforts (Liu & Zhou, 2022; Peng, 2020; Wang & Li, 2018), there still exist limitations:

- The first on the list is a lack of timely job-related information. As the frequency of industrial renewal accelerates and the cycle of technological iteration shortens, the work situation of actual jobs in enterprises may change all the time, while the traditional long-cycle, single-form, paper-based textbooks cannot respond in time, resulting in the lagging behind of learning content and thus making it difficult to meet the needs of cultivating innovative talents.
- Second, the vocational nature is underrepresented. Despite benevolent attempts in terms of content reconstruction and layout design, existing learning materials for higher vocational English learners fail to distinguish themselves from their academically-oriented counterparts in that what they offer is more about disciplinary knowledge than practical communicative skills necessary for job performance or business needs, and hence leading to a disconnect between education and industry.
- Third, quantitative analysis of language data is insufficient to ensure the pedagogical feasibility of authentic textbook materials. Among the existing textbooks for higher vocational English learners, barely any was developed on the premise of a quantitative examination of authentic language data and the selecting and sequencing of language items depend to a great extent on the materials developers' intuitions about language use. Moreover, as Carter (1998, p.52) noted, it is not uncommon to see mediation on authentic data in the textbook "to achieve clarity, tidiness and organization for purposes of learning", practice as such runs the risk of being subjective and hence compromises the reality of target language use.
- Last but not least, textbook interactivity has not been given due weight to motivate learners. The way how existing higher vocational English textbooks present information is mostly static, rigid and unilateral, failing to meet individual learning needs and hence is not in a position to adapt to the paradigm shift from a teacher-centered learning environment to a student-centered one.

Therefore, the focus of this study was put on the practical application of corpus linguistic techniques to address the limitations in current textbooks for higher vocational English learners. Based on the outer and inner characters of the loose-leaf textbook, this study explored the path to developing a corpus-based textbook of such type for higher vocational English learners, by following which the *Cross-border E-Commerce Operations English* has

been developed so that the learning materials could respond to the dynamic changes at work and reflect authentic language use, the organization of learning modules could reflect the complete work process, and the compilation of learning texts could be in line with learners' cognitive process. Furthermore, an online learning platform has been developed by merging corpus-based and web-based technologies to generate new possibilities for user interactivity. In sum, this study aimed to provide new ideas and solutions for the development of loose-leaf textbooks for vocational education.

Material and Methods

It's nothing new to use corpus-based approaches to developing foreign language materials. However, a literature review on all hitherto existing corpus-based English teaching and learning resources yielded the conclusion that researchers at home and abroad have been devoting much attention to incorporating corpus technologies into developing dictionaries and grammar books, such examples include *Collins COBUILD English Dictionary for Advanced Learners*, *MacMillan Dictionary for Advanced Learners of English*, *Cobuild English Grammar*, *Cambridge Grammar of English*, *Collins Natural Grammar*, etc. Meanwhile, researches on corpus-based textbook development were also productive, *Touchstone*, *Collins Cobuild English Course*, *Innovations*, *Headway*, *Cutting Edge* and *New Era Applied College English* are all representative cases, yet they are intended for English for General Purpose rather than English for Specific Purpose. Recently, Xu (2022) has used corpus-based approaches to extracting the vocabulary for vocational purposes. However, so far, no existing vocational English textbooks, let alone loose-leaf textbooks in this regard, have benefited from corpus methods, which fact brings novelty to our research. Hu and Li (2016) built the Contemporary English Corpus for Textbooks and analyzed its use in the compilation of English textbooks. Li (2021) developed a platform to promote the application of corpus linguistic techniques in language teaching and linguistic studies.

According to the findings of their research, the advantages of using corpus linguistic methods to develop higher vocational English textbooks can be summarized into four aspects:

(1) corpora, if designed as monitor ones, can track the diachronic change of language data linked to the technological revolution and industrial upgrading;
(2) corpora data can be sequenced, grouped or categorized against certain criteria, allowing the feasibility of modularizing textbook materials based on work process;
(3) quantitative analysis of corpora data are indicative of language learnability and hence can help select text data appropriate for pedagogical purposes;
(4) corpus linguistic methods can be incorporated with web-based technology to allow digital enhancement of printed textbooks.

In a word, corpus-based approaches can be a viable solution to the limitation of existing textbooks for higher vocational English.

Three-stage Design

The three-stage design scheme of a corpus-based loose-leaf textbook for higher vocational English learners is

shown in Figure 1. The three stages are the investigation of actual job tasks, the construction of specialized textbook corpus, and the transformation of corpus data into the printed textbook and the digital one, a detailed explanation of each stage is listed as follows:

(1) As the starting point, investigation into typical job tasks specified for a certain job position in enterprises needs to be conducted through a myriad of methods, including interviews, observation, questionnaires and document analysis. Then, the work-related information entailed in typical job tasks should be pedagogically processed to generate learning scenarios and learning tasks for instructional use (Cai et al., 2021).

(2) At the construction stage, material developers should construct a textbook corpus comprising language data about the learning tasks developed from the previous stage, preferably in cooperation with IT specialists.

(3) The transformation stage is pivotal in the development process, during which corpus data are calculated, analyzed, compared, and filtered with the aid of corpus-based techniques to flesh out the notion of the loose-leaf textbook in various forms including learning texts, vocabulary lists, learning tasks and an online learning platform.

In actual practice, those three stages are not entirely congruent with this linear sequence and the recursive process is not uncommon to ensure that the work process knowledge and language skill content in the textbook reach equilibrium.

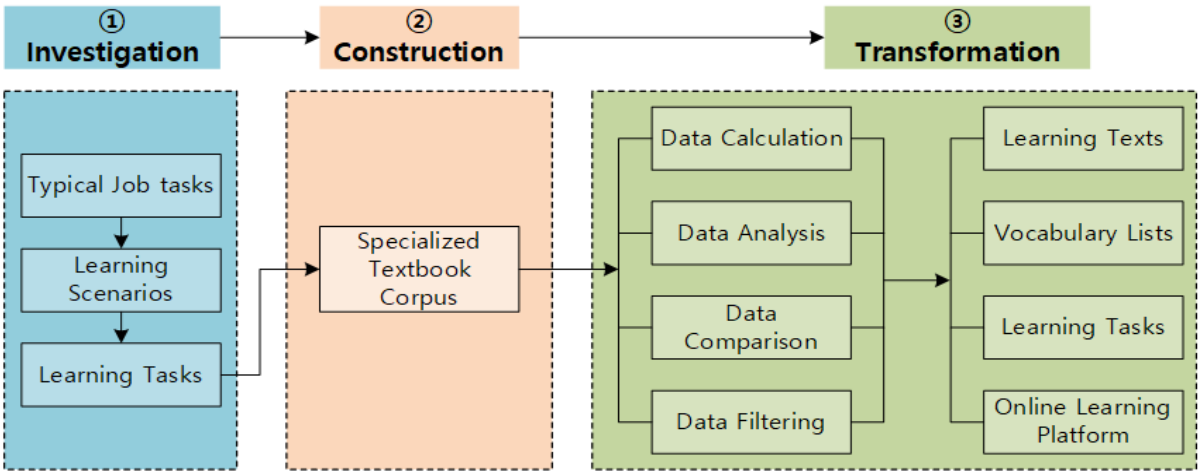

Figure 1. Three Stages of Developing a Corpus-based Loose-leaf Textbook for Higher Vocational English Learners

Implementation of Three-stage Design

The Research Center for Application of Big Data on Higher Vocational English Education affiliated with Chengdu Polytechnic, where the author works, developed a corpus-based loose-leaf textbook titled *Cross-border E-commerce Operations English* by following the above-mentioned procedure, and the concrete steps will be detailed in the following section.

Investigation

The loose-leaf textbook characterizes typical job tasks and work process knowledge as the main content and foregrounds vocational education through doing work-related tasks (Cai et al., 2021). Therefore, we went into cross-border e-commerce companies that have established school-enterprise cooperation with our college to investigate the know-how of cross-border e-commerce operations which constitutes a potential job common to the cross-border e-commerce major groups in our college. Upon investigation, we clarified the entire work process, typical job tasks and vocational competencies as prerequisite to getting the job done. And then, we grouped correlated vocational competencies into modules which served as the indicators for designing learning tasks contextualized in real work situations. Figure 2 shows the typical job tasks for cross-border e-commerce operations.

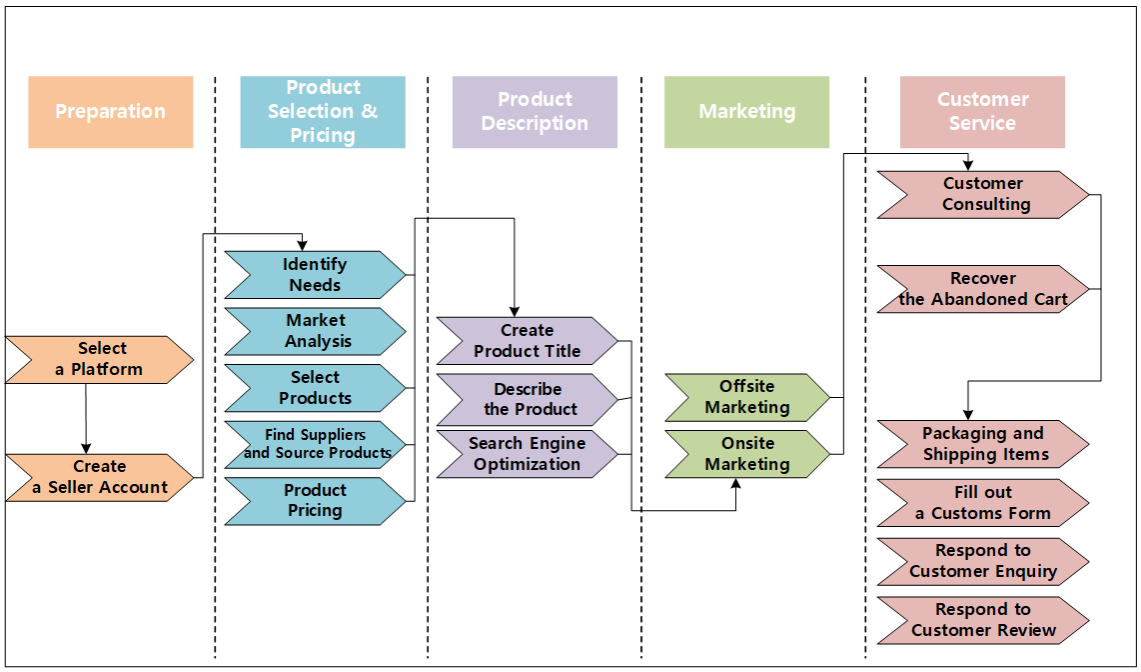

Figure 2. Typical Job Tasks for Cross-Border E-commerce Operations

Based on the analysis of typical job tasks pertaining to cross-border e-commerce operations, seven learning tasks were designed, each of which comprised several subtasks. As shown in Figure 3, those seven learning tasks are placed on the vertical axis and each of them forms a discrete module parallel to all the rest, while what's horizontally located within each module are subtasks arranged in a serial order indicative of the usual sequence to get a job done. Echoing the systematization of the work process, loose-leaf textbooks are modularized to answer the needs of enterprises as modularity in textbook design gives rise to functionally partitioned learning units that can be independently created, permutated or combined with other units and thus provides flexibility in knowledge representation and skills training. In addition, it should be noted that we maintained collaboration with cross-border e-commerce companies for constant observation on the changes in the industry. Should the changes become scalable to such a degree that the findings of previous analyses on typical job tasks need modification or replacement, we will start a new round of work-related investigation to ensure that textbook content precisely matches actual job requests.

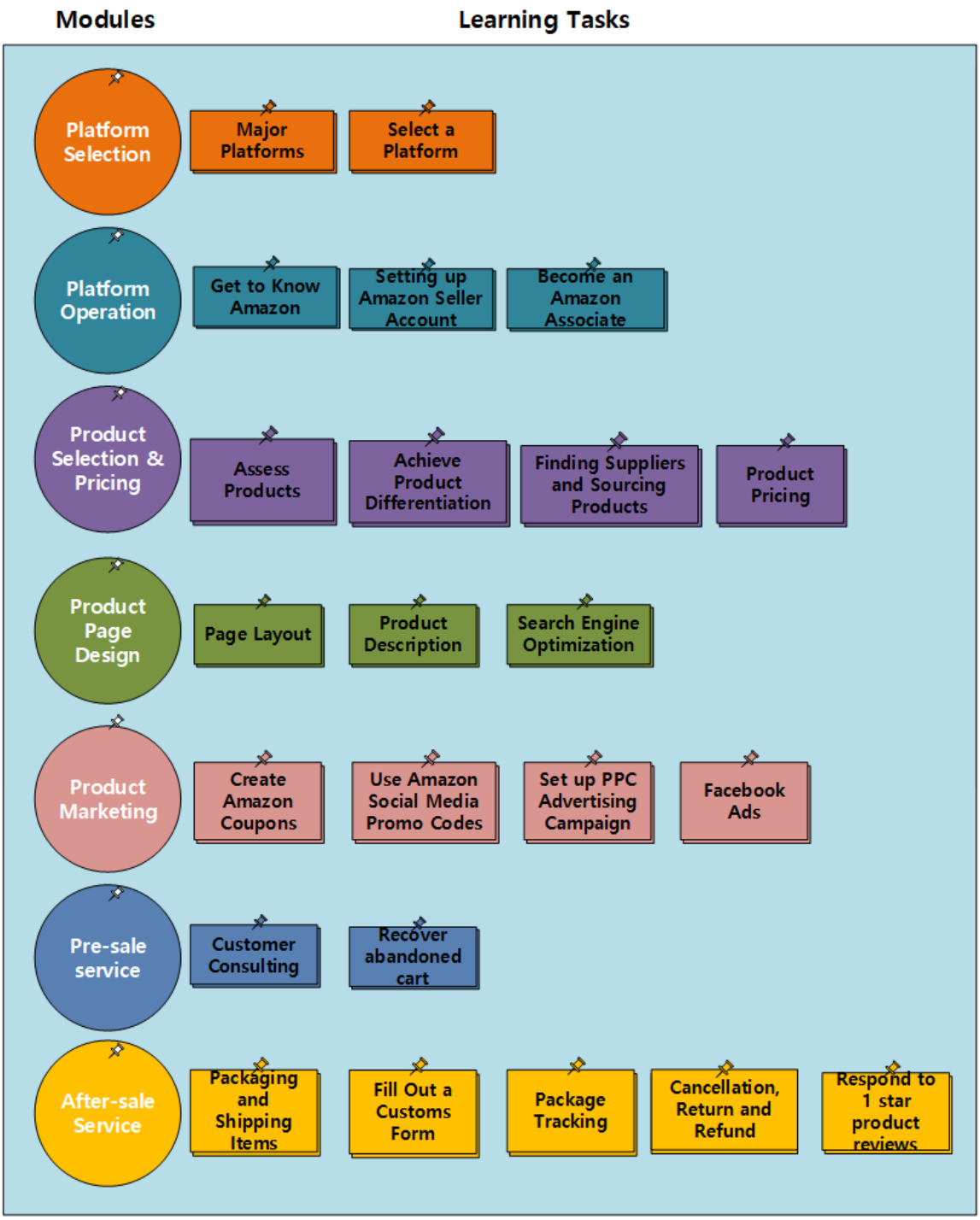

Figure 3. Modules of Learning Tasks and Subtasks in the *Cross-Border E-commerce Operations English*

Construction

No specialized corpus limited to the domain of cross-border e-commerce operations has hitherto been made readily available, not to mention a loose-leaf textbook developed based on it, so we worked closely with an IT company to build a textbook corpus called Cross-border E-commerce Corpus for Loose-leaf Textbook Development (henceforth CECLOTED). The creation of CECLOTED consisted of three steps: collection, preparation, and processing (see Figure 4).

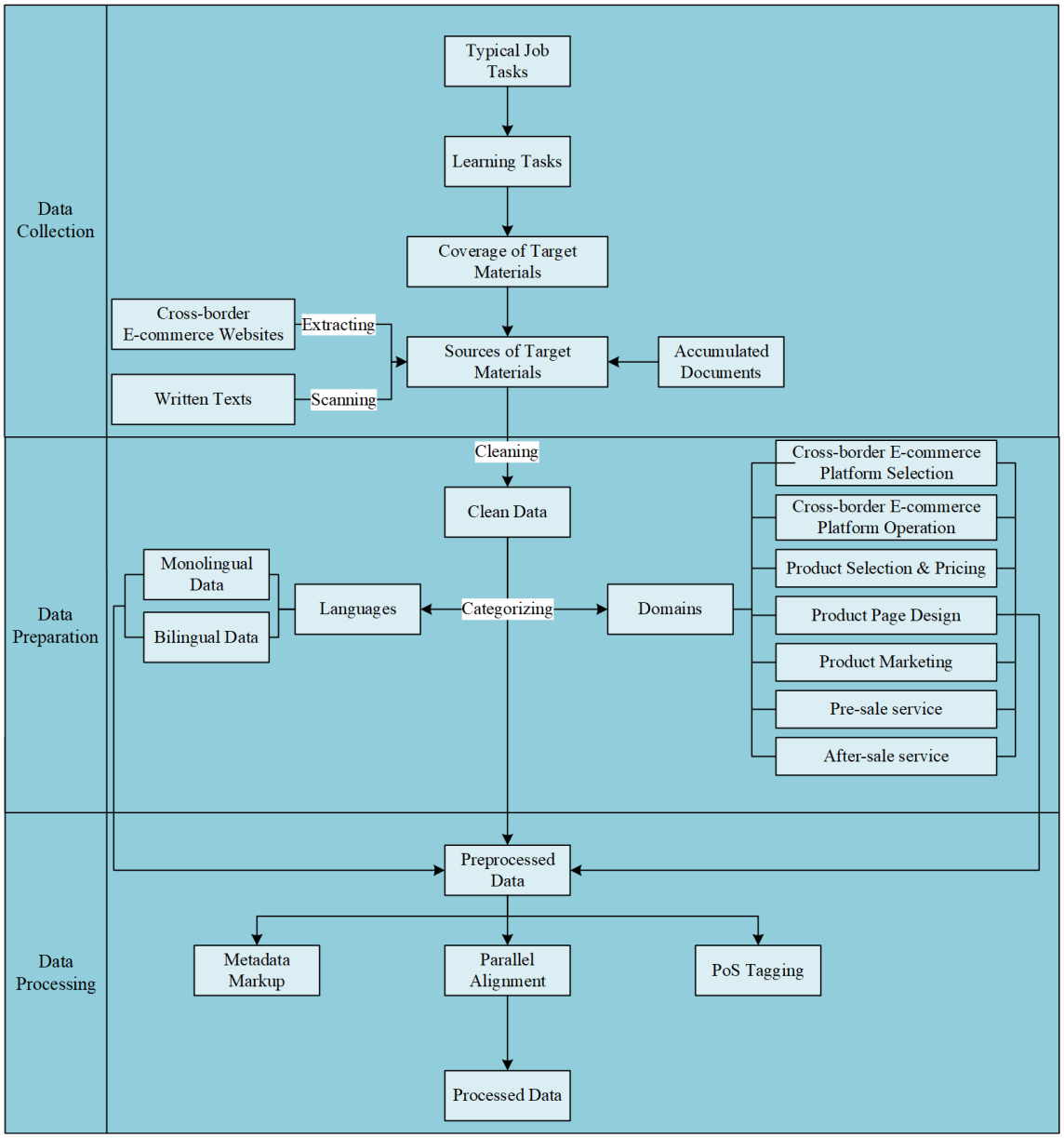

Figure 4. The Creation Process of CECLOTED

(1) The collection step drew on the results of work-related analysis from the prior stage to define the coverage and sources of target materials. CECLOTED covered subject fields related to those seven learning tasks, namely, cross-border e-commerce platform selection, cross-border e-commerce platform operation, product selection & pricing, product page design, product marketing, pre-sale service, and after-sale service. By doing so, CECLOTED painted a miniature of work scenarios, and a corpus as such is more conducive to enhancing practical language ability and professionalism. CECLOTED data were mainly sourced in three ways: first, scanning written texts from paper publications such as specialized literature, corporate case studies, technical manuals and converting the image of texts into machine-readable text formats through OCR software; second, extracting publicly available data from major cross-border e-commerce websites; third, sifting through relevant documents accumulated by the IT company from previous corpus-building projects. Also noteworthy was that we collected both monolingual and bilingual data, the latter of which was aimed, among other things, at pooling resources for designing

translation exercises in the later stage.

(2) In the preparation step, we pre-processed the corpus by cleaning and categorizing the data. In the case of CECLOTED, cleaning referred to the proofreading work to standardize the texts and to remove irrelevant digits and characters so that what's left was a high-quality dataset ready to be further processed by corpus tools. Categorizing meant dividing CECLOTED into subcorpora using two criteria, i.e. language and domain. Against the criterion of language, CECLOTED was initially divided into two corpora, one of the monolingual texts and one of the bilingual ones. Those two corpora were then further split into seven domains specific to above-mentioned learning tasks, giving rise to seven monolingual subcorpora and seven bilingual ones respectively.

(3) Next came the processing step which involved metadata markup, PoS tagging and alignment of bilingual texts. For easier data retrieval, we used a set of descriptors to mark up such beyond-text properties as the original source, publisher, publication date and author, as well as in-text structural references such as title, heading, paragraph and passage. Also, we used the PoS tagging technique to label each word with its part of speech, which made it possible to conduct syntactic analysis on corpus texts. Moreover, we employed a combination of automated methods and manual revision to have the bilingual subcorpora of CECLOTED (henceforth CECLOTED_PL) aligned with sentence and paragraph delimiters.

Transformation

Once built, CECLOTED served as a treasure box from which materials can be selected and compiled to transform into a textbook. Compilation held a crucial position in the transformation stage. Therefore, we weighed the merits and demerits of two broad schools of thought about how far corpus linguistics can and should influence the content of language teaching, namely, the "modeling" approach and the "corpus-driven" approach. As Carter et al. noted (2011, p. 94), " the differences and distinctions between corpus-informed and corpus-driven materials are useful here, with the category of corpus-driven suggesting a full adherence to the evidence of the corpus and the former corpus-informed category suggesting that some modification, manipulation and careful choice on the part of the materials writer should be preferred", corpus-informed materials presupposes modeling data on authentic patterns. By contrast, corpus-driven approaches prioritize authenticity and presume that changes made on corpus data of any kind, be it rewriting, simplification, modification, edition or revision would compromise authenticity (He, 2010). The pedagogic concerns behind the inclination towards the "modeling" approach, amongst other things, are "range, learnability and usefulness" (Ranalli, 2003, p. 8), all of which can be addressed owing to the advancement of corpus linguistic techniques and supports from the school-enterprise cooperation established for this project. First, the range factor was taken into consideration at the stage of corpus construction, we built CECLOTED as a corpus specific to the domain of cross-border e-commerce operations. Second, as for learnability of textbook materials, we resorted to readability tools and newly-issued *English Curriculum Standards for Higher Vocational Education 2021 Edition* (Ministry of Education of the People's Republic of China, 2021) as the criterion to ensure that the selected materials would neither pose an insurmountable barrier to learners nor extend beyond or fall below national curriculum standards. Third, regarding the usefulness of textbook materials, we benefited from multidisciplinary collaboration in a team made up of linguistic researchers, higher vocational English teachers, corporate specialists and IT professionals, and hence triangulation of perspectives can enhance

the validity and reliability of research findings.

Results

With *Module Four: Product Page Design* as a a case example, below will be a detailed recount of the statistical and linguistic findings during the process of transforming CECLOTED data into learning texts, vocabulary lists, learning tasks and an online learning platform, all of which are constituent parts of the *Cross-border E-Commerce Operations English*. *Module Four: Product Page Design* relied as source texts on the identically-named sub-corpus of CECLOTED (henceforth CECLOTED_PPD), data of which were extracted from product detail pages on Amazon and we ensured that those data bore no identification of and hence no potential harm to any individual users (Ainscough et al., 2018; Dawson, 2014; Eysenbach & Till, 2001). In order to ensure the representativeness and balance of CECLOTED_PPD, our team referred to the *State of the Amazon Seller* reports from 2020 to 2022(Jungle Scout, 2020; Jungle Scout, 2021; Jungle Scout, 2022), thus narrowing the coverage of data collection to the top 10 most popular Amazon product categories over the latest three years, namely, Home & Kitchen, Beauty & Personal Care, Toys & Games, Health & Household & Baby Care, Sports & Outdoors, Kitchen & Dining, Office Products, Garden & Outdoor, Tools & Home Improvement and Pet Supplies. As shown in Table 1, the size of the collection was limited to around 150,000 tokens for each of the above categories so that CECLOTED_PPD was balanced and representative of trending products in the current cross-border e-commerce market, and the size of CECLOTED_PPD is 1,306,983 in tokens and 62,640 in types.

Table 1. Statistics of Each Category of Corpus Data in CECLOTED_PPD in terms of Type-token Ratio (TTR), Standardized Type-Token Ratio (STTR), Moving Average Type-token Ratio (MATTR)

Categories	Types	Tokens	TTR	STTR	MATTR
Beauty & Personal Care	11070	132702	0.08341999	0.73411167	0.7341141
Garden & Outdoor	13850	143068	0.096807115	0.7580649	0.7596851
Health & Household & Baby Care	10514	98994	0.10620846	0.7501828	0.7491133
Home & Kitchen	13477	134883	0.09991623	0.7602598	0.7608536
Kitchen & Dining	12467	136553	0.9129789	0.7559156	0.7563213
Office Products	11828	132960	0.08895908	0.76007575	0.7593586
Pet Supplies	11768	115882	0.101604186	0.74108684	0.7403655
Sports & Outdoors	12608	142765	0.08831296	0.7542994	0.75464255
Tools & Home Improvement	13742	132190	0.101913914	0.7615131	0.76141924
Toys & Games	13214	137046	0.096420184	0.7404154	0.7398923

Learning Texts

Learning texts of a loose-leaf textbook should provide, in a systematic, comprehensive and detailed manner, theoretical knowledge encompassing the complete work process, so that learners, in the meantime of improving reading comprehension, can gain an overview of the whats, the whys and the hows of job tasks, e.g., “tools, methods, principles, procedures, skill requirements and operational guidelines for getting the job done” (Cai et

al., 2021, p. 91). With the assistance of corpus linguistic techniques, we drew on the synergy of combining quantitative and qualitative methods to measure the readability of texts and the Wordlist of the *English Curriculum Standards for Higher Vocational Education 2021 Edition* (henceforth WECSHVE 2021) (Ministry of Education of the People's Republic of China, 2021) was used as the benchmark for comparative analysis. With the aid of the metadata variables encoded within each corpus file, we started by sifting for relevant texts from CECLOTED_PPD and then pinpointed the ones that qualified as potential learning texts. Once chosen, those textbook materials candidates would undergo readability measurement by corpus tools such as AntWord Profiler 2.0.1. (Anthony, 2022b).

To be more exact, we divided the WECSHVE 2021 (Ministry of Education of the People's Republic of China, 2021) into three base lists as suggested by its developers (Ma et al., 2022), namely, WECSHVE_1st_2100 (2100 words that should have been mastered prior to college), WECSHVE_2nd_500 (500 words for fundamental-level higher vocational English learners), WECSHVE_3rd_400 (400 words for advanced-level higher vocational English learners), with which as the reference, we used AntWord Profiler 2.0.1 (Anthony, 2022b) to measure the percentage of words beyond the range of the WECSHVE in the preliminarily selected texts and filtered out the ones whose proportion of Off-list words exceeded 2%, which was a threshold of reading comprehensibility proposed by Laufer and Ravenhorst-Kalovski (Laufer & Ravenhorst-Kalovski, 2010). Then we conducted further analysis on the remaining texts in terms of vocabulary dispersion across the three base lists and Off-list respectively, thus ensuring that learning texts were sequenced by increasing difficulty. In this way, we can guarantee the authenticity and integrity of the learning texts while seeing to it to the greatest extent that the order of compilation is in line with learners' cognitive process. Figure 5 presents the dispersion of words in the four learning texts in *Module Four*: *Product Page Design* across the above-mentioned three base lists and the Off-list.

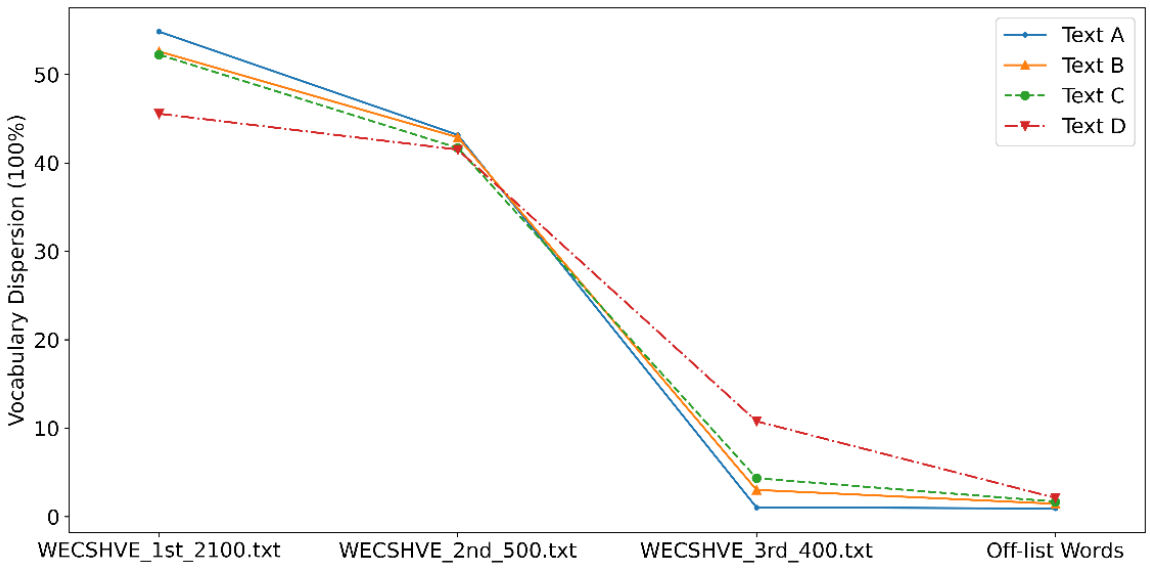

Figure 5. Vocabulary Dispersion of the Learning Texts in *Module Four* across the WECSHVE

As can be seen from Figure 5, these four texts (from Text A to Text D) are placed in descending order in terms of lower-level vocabulary (WECSHVE_1st_2100 and WECSHVE_2nd_500) whereas the trend reverses when it

comes to higher-level vocabulary (WECSHVE_3rd_400 and Off-list words), such is the statistical evidence for compiling those four texts (from Text A to Text D) in an order reflective of increasing lexical complexity.

Vocabulary Lists

Under the banner of vocational English, cross-border e-commerce operations English features domain-specific vocabulary which poses a greater challenge to learners than that of grammar or discourse. As Xu (2022) noted, vocational vocabulary or terminology is the fundamental obstacle to learning vocational English. As such, we used corpus tools to automatically extract the vocational vocabulary and terminology per module since each module is characterized by distinctive workplace scenarios. Also cite *Module Four: Product Page Design* as an example, we applied automatic identification of Keywords to the learning texts. With Crown and CLOB as reference corpora (Xu & Liang, 2013) and the learning texts of *Module Four* as the study corpus, we pinpointed the Keywords specific to the scenario of cross-border e-commerce product description using Antconc 4.1.2 (Anthony, 2022a), thus generating a list of 140 keywords ranked by keyness value and frequency. Further confirmation was undertaken by our multidisciplinary team of corpus linguistic researchers, higher vocational English teachers and corporate specialists to sift out function words, proper nouns and general vocabulary, and then the remaining words were lemmatized, thus reducing the vocabulary list to 57 words. Table 1 provides the list of Keywords, their frequencies and keyness values in terms of the 4-term Log-Likelihood keyness measure.

Table 2. The List of 57 Keywords of *Module Four*, Their Frequencies and Keyness Values in terms of 4-term Log-Likelihood Keyness Measure

keyword	**Frequencies**	**Keyness (LL4)**
SEO	27	297.96
vitamin	16	129.68
item	21	119.76
engines	10	64.49
pants	10	61.52
overalls	6	60.47
website	11	59.05
vitality	7	54.28
couture	5	49.77
template	6	48.31
prêt-à-porter	4	44.13
haute	5	42.83
keywords	5	40.06
blanket	7	39.32
bib	4	39.14
copy	8	35.3
boots	8	34.76

bling	4	34.6
purchase	8	33.25
beater	3	33.1
du jour	3	33.1
preppy	3	33.1
squalene	4	33.2
vitamix	5	33.3
intent	6	31.17
striped	4	28.92
skater	3	28.61
reviews	6	27.03
exclusivity	3	26.38
brand	8	25.78
boost	6	25.43
tags	4	25.17
faux pas	3	24.8
oatmeal	3	23.57
accessories	3	22.55
alliteration	2	22.07
dropper	2	22.07
glitterati	2	22.07
PDP	2	22.07
purees	2	22.07
squalene	2	22.07
testimonials	2	22.07
trucker	2	22.07
UPC	2	22.07
visibility	4	21.98
headline	4	21.06
optimize	3	20.94
immortality	3	20.94
recipes	4	20.78
blog	5	19.81
chic	3	19.67
evoke	3	19.13
sneakers	3	19.13
enticed	2	18.25
lingo	2	18.25
passe	2	18.25

Learning Tasks

To increase learner autonomy, we developed a series of learning tasks, the sum of which formed the backbone of the textbook. Each learning task consists of five sections titled “Learning Context”, “Learning Objectives”, “Task Description”, “Task Allocation”, “Task Preparation” and “Task Implementation” respectively, and the intent of a task-centered organization as such was to help learners reap the benefits inherent in learning through doing. Among the five sections, “Task Implementation” claimed the largest space. This section served the dual roles of task operation instruction and vocational English training, and the latter was fulfilled by incorporating the findings of corpus linguistic analysis, thus giving rise to exercises on word formation, collocation, grammar and translation. First, word formation exercises were designed on the basis of the Vocabulary List (see Table 2) compiled in the earlier stage.

By combing through the Vocabulary List, we identified words featuring a great variation in derivative forms, which served as base forms to do searches using the wildcard asterisk (*) in CECLOTED_PPD. By doing so, we tracked all derivatives of base forms in CECLOTED_PPD. Then, we probed the context of their usage through the keyword in context (henceforth KWIC) view to pinpoint example sentences semantically and structurally appropriate for designing word formation exercises. A case example is “optimize” tracked as a base form following the procedure mentioned above, and then we used optim* as the search term with Antconc 4.1.2 (Anthony, 2022a), and found that the word family of “optimize” in CECLOTED_PPD included “optimize”, “optimized”, “optimal”, “optimally”, “optimum”, “optimization” and upon further KWIC review, we chose as example sentences characteristic of the work situation of describing product details for cross-border e-commerce operations, and hence designed word formation exercises on their basis.

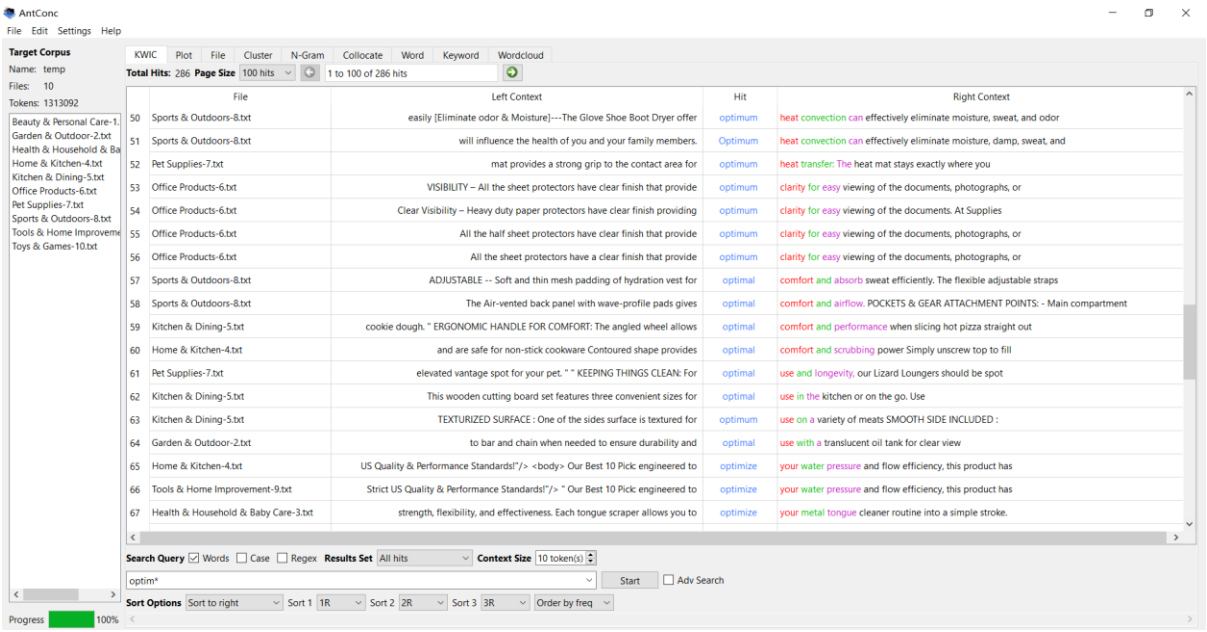

Figure 6. A Screenshot of KWIC Concordances for the Term optim* Generated Using the Antconc 4.1.2

Second, the design of collocation exercises was realized by using the collocation technique of corpus analysis

software. We used corpus-based measures to provide quantitative evidence to identify collocates. Operationally, for word A in the Vocabulary List of *Module Four*, a collocation investigation was conducted with corpus tools, rendering word B as its collocate and the strength of association between word A and word B in CECLOTED_PPD. Given the assumption that collocations are linked to fluent and natural production associated with native speakers of the language (Erman et al., 2016; Howarth, 1998; Hyltenstam et al., 2016; Paquot & Granger, 2012; Sinclair, 1991;), we would be in a position to hypothesize that the higher the value of collocational strength, the greater the necessity to master the collocation. Also with "optimize" as an example, we used the collocation measure embedded in #LancsBox 6.0 (Brezina et al., 2021) to identify the collocates of it in CECLOTED_PPD.

Figure 7 presents in graphical terms the words that repeatedly co-occur with "optimize", thus they were deemed as the collocates of it. A KWIC view uncovered a series of co-occurrences of "optimize" with its above-mentioned collocates within a specified window span of 0 word to the left and 5 words to the right of the node (0L-5R), for example: "optimize storage space patented bit-bar design", "optimize bioavailability", "optimize lean muscle growth", "optimize workouts 24/7 heart rate", "optimize the next 7 days", "optimize the performance of your air purifier", etc. These are formulaic sequences, and as noted by Wood (2002, p. 13), "given our abundant knowledge about the role of formulaic language in acquisition and production, it appears high time that we began to teach formulas and facilitate their acquisition more directly in the classroom. By doing so, we could open the door to improvements in how learners acquire second languages." Therefore, we developed collocation exercises focused on the above-mentioned formulaic language units common in the context of cross-border e-commerce.

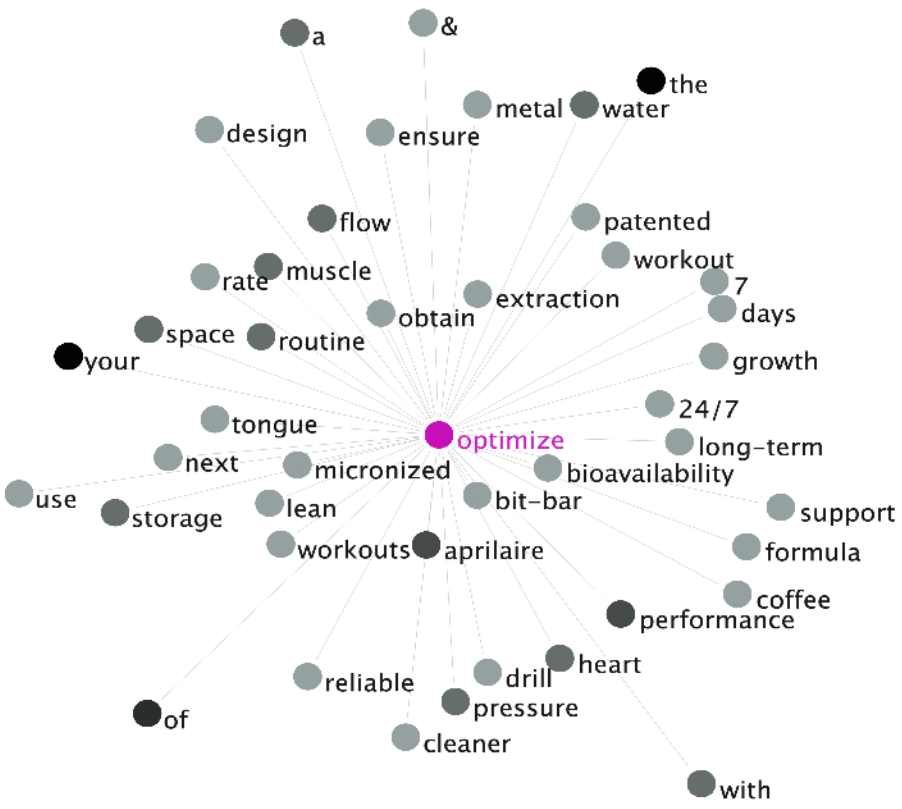

Figure 7. Graphical Display of the Collocates of *Optimize* in CECLOTED_PPD

Third, exercises were generated by drawing insights from the results of a colligation analysis on PoS-tagged data in CECLOTED_PPD. According to Firth (1968), colligation refers to the syntagmatic attraction between grammatical categories while collocation, for him, was the syntagmatic attraction between lexical items. As with collocation, awareness of colligation should accelerate the process that Hoey (2010) described as priming so as to shorten the length of time required to prime any grammatical structure. For the sake of coherence with the previous explication, "optimize" will be used again for illustration. We used #LancsBox 6.0 (Brezina et al., 2021) to find and visualize grammatical categories that co-occurred with "optimize" in CECLOTED_PPD.

As shown in Figure 8, there exists the strongest association between "optimize" and possessive pronoun (PP$) as the latter is placed closest to the former. As far as colligation frequency is concerned, common nouns (NN) claim the top spot as indicated by the intensity of the color of NN. Additionally, The positioning information in Figure 8 reflects the exact position of grammatical categories co-occurring with "optimize" in CECLOTED_PPD, i.e., coordinating conjunction (CC), possessive pronoun (PP$), comparative adjective (JJR), past tense verb of lexical verb (VVD), article and determiner (DT), common noun (NN) appear to the right of "optimize", by contrast, VVN (past particle of lexical verb), TO (to), JJS (superlative adjective) appear to the left of "optimize" while cardinal number (CD) appear sometimes left and sometimes right (as indicated by the middle position in Figure 8). All the above-mentioned colligational information concerning association strength, frequency and position serve as indicators for designing exercises to raise learners' awareness of grammatical patterns identified in the co-text of "optimize".

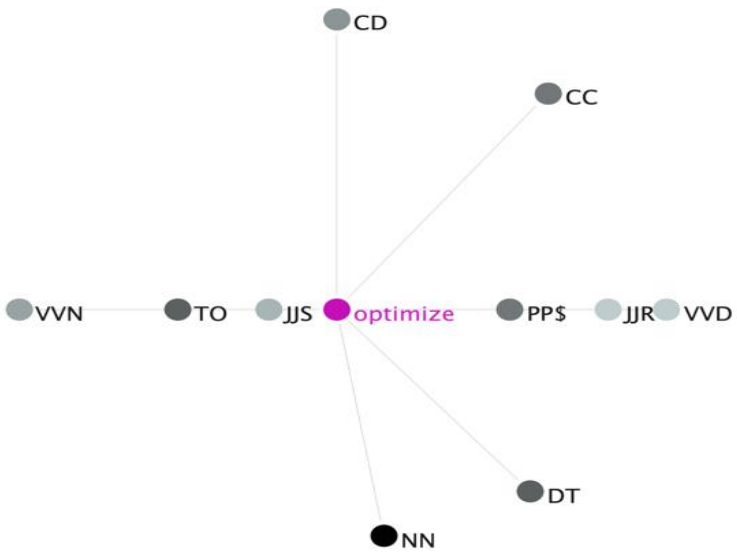

Figure 8. Colligation Graph Visualizing Grammatical Categories Co-occurring with "Optimize" in CECLOTED_PPD

Last but not least, we used CECLOTED_PL as source texts to design translation exercises, which were aimed to improve higher vocational English learners' command of lexico-grammatical patterns. Along the lines of using"optimize" as an instance, we will exemplify the hows of designing "optimize"-related translation exercises. Using "optimize" as the search term with bilingual concordancer such as BFSU Paraconc1.2.1 (Xu et al., 2012) and ticking its "lemmatize" function, we retrieved English-Chinese bilingual concordance lines containing

"optimize" and its inflected forms in CECLOTED_PL to design translation exercises, through which learners can infer the lexico-grammatical patterns of "optimize" and its inflections through translation practice.

Online Learning Platform

Among a number of revolutionary changes that the loose-leaf textbook brought to conventional print textbooks, digital enhancement broke new ground for "participation, flexibility and personalization" (Yerushalmy et al., 2014). Therefore, we availed the advantage of electronic datasets in CECLOTED to develop a corpus-based online platform coherent with the print textbook version, thus creating new spaces of connectivity and interactivity for higher vocational English learners. The corpus-based online platform was based on a B/S architecture and it was divided into backend and frontend components. The backend includes two modules, one is for data management which enables customized corpus building to facilitate autonomous learning, and the other is for user management which grants permission to the inclusion of new data into the embedded corpus after quality insurance. The frontend is the user interface which includes four modules, i.e., "My Corpus", "My Document", "My Terminology", and "Cross-border E-commerce in China", each having different functionality. Figure 9 below illustrates the formation mechanism for the corpus-based online learning platform.

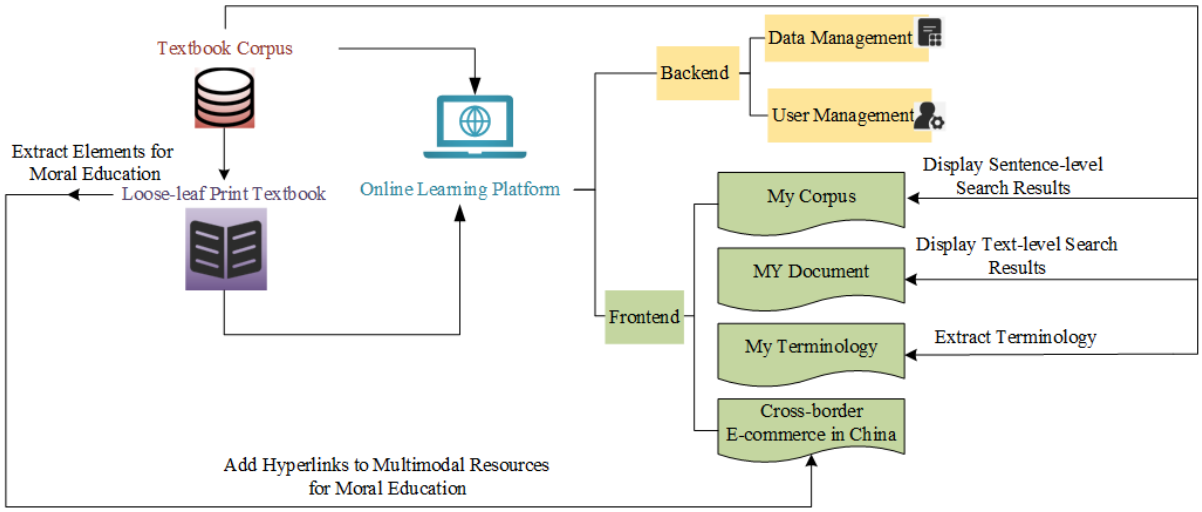

Figure 9. The Formation Mechanism for the Corpus-based Online Learning Platform

"My Corpus" displays the KWIC view through the use of CECLOTED. Then, "My Document" presents the context of the inputted search terms, i.e., texts such as specialized literature, corporate case studies and technical manuals in CECLOTED. "My Terminology" provides translation, definition and hyperlinks for quick and easy access to information related to the technical terms specific to cross-border e-commerce in CECLOTED. Furthermore, as the *Implementation Plan of National Vocational Education Reform* (Ministry of Education of the People's Republic of China, 2019b) unequivocally stated, moral education should be at the core of vocational education, so in conformity with national policy, we designed "Cross-border E-commerce in China" specifically to unleash the potentials of loose-leaf textbooks in instilling moral values and promoting cultural confidence. Albeit being an explicit part of national policy on vocation education, imparting moral values explicitly would run the risk of being too abrupt to be resonating with the learners. Therefore, we extracted from the printed version

of the *Cross-border E-Commerce Operations English* China-specific information before adding hyperlinks to the multimodal representation of such information to "Cross-border E-commerce in China", so that connectivity and coherence can be ensured between the printed version and digital version of the loose-leaf textbook in terms of moral teaching. Meanwhile, with a click of the mouse, learners can gain an awareness of the development of China's cross-border e-commerce, for example, the supportive policies such as the Belt and Road Initiative, China-Europe Railway Express and the "Going Global Strategy" as well as international situations such as the Covid-19 global pandemic, global inflation and digital divide, all of which are aimed at increasing higher vocational English learners' consciousness of the responsibility on their shoulders and the challenges awaiting to be hurdled by them as stakeholders.

Discussion

Upon the practice of developing the *Cross-border E-Commerce Operations English*, we derived inductively three key points worth noting for similar studies in the future.

Orientation towards Jobs

Being oriented towards typical job tasks is an intrinsic characteristic of a corpus-based loose-leaf textbook for higher vocational English learners and such is the essence that makes this type of textbook distinct from its disciplinary-based counterparts. Orientation towards job tasks entails a new type of corpus which embodies not only the authentic language use at work but also the complete work process to get a job done, therefore on-the-job investigation rather than introspective thoughts should be the premise for determining what materials the corpus will comprise. As such, loose-leaf textbook corpus features what enterprises need in terms of language, which distinguishes itself from traditional corpus revolving around disciplinary subjects. To be more specific, analysis of typical job tasks should be targeted at the same or similar job that certain major clusters are inclined towards (Wang et al., 2021, p. 104), and then the context of this very job should be converted pedagogically into learning situations, in accordance with which learning tasks can be developed and be ensured of authenticity and practicality. In other words, corpus-based loose-leaf textbooks should be expressive of both typical job tasks and authentic communicative context, thus linking EFL to vocational job requirements.

Maintenance of Authenticity

Authenticity plays a vital role in EFL learning. Liu & Wang (2021, p. 4) noted that once learners gain the ability and accustomization to acquire language in authentic communicative activities, learner autonomy can be substantially increased. As for higher vocational English, being authentic means that linguistic data arise from actual work activities and are reflective of the communicative context of real working process. Therefore, the loose-leaf textbook for vocational might as well position itself towards the right side of the corpus-informed versus corpus-driven continuum, maintaining to the greatest extent possible a full adherence to the evidence of the corpus. Nonetheless, a balance should be stricken between language authenticity and pedagogical feasibility so as not to pose undue cognitive difficulty (Carter et al., 2011, p. 89). A viable approach is examining data through corpus

linguistic lenses which include but are not limited to frequency, keyness, dispersion, collocation and colligation, by doing so, learning materials can be kept within the grasp of the learners while staying true to the original source to the maximum extent practicable.

Digital Enrichment

Wang et al. (2021, p. 58) remarked that digital enrichment should be conceived as an integral part of loose-leaf textbooks for vocational education. In the case of corpus-based loose-leaf textbooks for higher vocational English, a companion online learning platform is a viable form of digitization of conventional textbooks given the machine-readable feature of corpus data. The platform should be tightly connected to the print textbook yet much more than simply a digital version of it. Rather, it should provide an effective supplement to the print version by incorporating corpus-enabled functions such as KWIC view, file view, as well as terminology search, all of which are to facilitate autonomous learning beyond the classroom. Furthermore, it can be connected via hyperlinks to other sites so as to grant unlimited multimodal resources to help learners assimilate information related to the development of Cross-Border E-Commerce in their own country and raise their awareness of challenges and ensuing responsibility. In so doing, the loose-leaf textbook can fulfill the role of moral education in conjunction with the development of language proficiency and vocational skills.

Conclusion and Recommendation

To date, there has been no publicized endeavor in designing a loose-leaf textbook using corpora and corpus linguistic tools. This study targeted at the limitations of current higher vocational English textbooks and made attempts to overcome those constraints by incorporating corpus linguistic methods in textbook development. Upon the practice of compiling the *Cross-border E-Commerce Operations English*, this study proved the practicability of using corpus linguistic approaches to help EFL textbooks deliver timely, authentic, work-based content enhanced by digitalization. As has been noted in the opening part, loose-leaf textbook materials need to adjust to the ever-changing new technologies, new industries and new business models, and thus the development of such textbooks is an evolving process, providing a rich field for further exploration, be it an updated syllabus, a compatible teaching methodology or the possibility to automate the process to update the textbook corpus data echoing changes in the cross-border e-commerce industry.

Acknowledgments

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Notes

#LancsBox 6.0 use TreeTagger 3.0 for annotating texts with PoS information.

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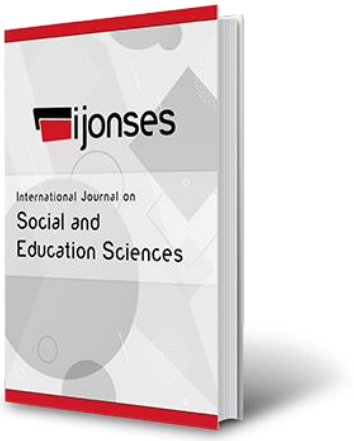

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Social Studies Pre-service Teachers' Educational Comics Experience for Disaster Education

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Social Studies Pre-service Teachers' Educational Comics Experience for Disaster Education

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Abstract

The aim of the study is to reveal the experiences of social studies pre-service teachers on the use of educational comics in the teaching of subjects related to disaster education. Phenomenology design, one of the qualitative research methods, was used in the research. 30 social studies teacher candidates participated in the research. Pre-service teachers who participated in the research were given disaster education during one semester (12 week-2 hours). This education process also includes creating and using educational comics in disaster education. In the study, semi-structured interview and observation were used as data collection method. Thematic analysis was used in the analysis of the data obtained in the research. As a result, it has been revealed that social studies pre-service teachers see educational comics as a material that can be used in disaster education in line with their experiences. The pre-service teachers stated that educational comics is attracting attention, engaging participation, making it easier to understand. Pre-service teachers stated that educational comics contain limited information, and takes time to create and use.

Introduction

Nature offers many opportunities for human life. In addition, some natural events may pose a threat to humans. Threats posed by natural events should not be interpreted as disasters on their own. For example, natural events such as earthquakes, floods, and storms do not have the characteristics of a disaster by themselves. However, the fact that people are unprepared for the effects of these natural events, that is, they take risks, creates the possibility of disaster. We can deduce the following conclusion from this: While the same natural event does not have the characteristics of a disaster for a prepared society, it may create a disaster for an unprepared society. This shows the importance of being prepared for disasters. Natural events that create disaster situations usually occur suddenly, often cannot be stopped after they have started, and can cause great loss of life and property (Fuhrmann, et al., 2008; Kirikkaya, Unver & Cakin, 2011). In a disaster event, not only the people in the disaster area but also the society, in general, are adversely affected (Celık & Gundogdu, 2022). However, although the hazards are inevitable, it is possible to reduce the risks related to them with conscious and continuous intervention (Petal, 2008).

The importance given to natural or man-made disasters may vary according to a country's geographical, political

and economic conditions. However, many countries have started to give more importance to disaster preparedness studies. Because developing strategies to cope with disasters has become a necessity for the protection and development of countries (Kitagawa, 2015; Sakurai, et. al., 2017). Education is one of these strategies. With disaster education, the capacity of societies to cope with disasters can be increased. Thus, social and economic losses are reduced and recovery is accelerated after adverse situations (Chou, et al., 2015).

The purpose of disaster education is to increase people's resilience to disasters and help them to be prepared for disasters (Ronan & Towers, 2014). Training to be provided within the scope of disaster preparedness reduces the vulnerability of individuals and societies with direct and indirect contributions and provides a more sustainable future (Cvetković, 2015; Johnson, et al., 2016; Kirikkaya, Unver & Cakin, 2011; Monter & Otto, 2018). Disaster education is also necessary for disaster risk management to be sustainable (Asharose et al., 2015). Disaster education affects knowledge, awareness, risk perception, and disaster preparedness about disasters (Adiyoso & Kanegae, 2012; Nikolaraizi, 2021).

As the frequency of disasters and the damage caused by them increase worldwide, the tendency for disaster education has increased (Siriwardena, et al., 2013). Because in case of disaster, educated individuals are the most powerful factor in coping with the consequences of the disaster (Takeuchi, Mulyasari & Shaw, 2011). To achieve the objectives aimed at disaster education, information about disasters should be given at the appropriate time, correctly, and with effective teaching activities (Mizrak, 2018). With school-based disaster education, society can be strengthened against disasters (Tatebe & Mutch, 2015; Zhu & Zhang, 2017; Celık & Gundogdu, 2022). Schools, and therefore teachers, are important factors in enabling students to cope with disasters. In addition, teachers are very effective in increasing public awareness and preparedness for disasters and disseminating accurate information (Adiyoso & Kanegae, 2012).

Disaster education should start from an early age. For this reason, the subjects related to disaster education in the curriculum of primary education courses should be seen as an opportunity. The correct use of this opportunity is related to the competence of teachers in disaster education (Çelik & Gündoğdu, 2022). For this reason, pre-service teacher should be informed about disaster education and they should be trained on teaching materials that they can use while teaching this knowledge to someone else.

It is expected that a teaching activity should be suitable for the level of the student, be interesting, facilitate learning, create permanent learning, be economical and easily accessible. Educational comics are among the teaching materials that can be used in line with these needs. Because studies in different fields reveal that educational comics make a positive contribution to attracting students' attention (Astuti, Kismini & Prasetyo, 2014; Topkaya & Şimşek, 2016; Weitkamp & Burnet, 2007), facilitating learning (Celik & İlhan, 2021; Cicek Senturk, 2020; Mamola, 2019; Senturk, 2021), and increasing the permanence of what has been learned (Senturk, 2022; Themelis & Sime, 2020). In addition, educational comics are relatively easily accessible and economical materials with the opportunities offered by today's technology (Akcanca, 2020; Affeldt, Meinhart, & Eilks, 2018).

It is thought that learning processes that can be personalized and allow discovery can increase success within the

scope of disaster education (Sharpe & Kelman, 2011). Educational comics allow the learner to organize their learning process with the opportunities they offer in the learning process (Senturk, 2021). Dale (1969) proposes to live a real experience or model a real situation in the Cone of Experience for permanent learning.

However, the content of the training or the training environments may make it difficult to meet these recommendations. Educational comics offer opportunities in Dale's cone of life that appeal to almost every recollection level. It can offer learning opportunities by reading or listening, respectively, from the lowest recall level to the highest. Educational comics can contribute to the learning process by visualizing the message to be conveyed. In addition, the scenario in the educational comics can be animated and the opportunity to learn by doing, that is, by creating an experience.

Educational comics can be a powerful supplementary actor in the educational process (Berkowitz & Packer, 2001; Cimermanová, 2015; Rajendra, 2015). Educational comics must meet two basic pedagogical principles to support the educational process. The first of these is to be interesting and the second is to establish a solid connection with real life (Toh et al., 2016). These bring some responsibilities in the use of educational comics. Because educational comics have some limitations in terms of their structure as well as the contributions they can provide to the educational process. The limitations of written expression are among the first examples that can be given here (Topkaya & Yilar, 2015). In addition, teachers may see producing educational comics suitable for the subject as an extra burden (Karagoz, 2018).

Examination of pre-service teachers' experiences with educational comics can offer important clues for the effective use of educational comics. Therefore, in this study, the experiences of social studies pre-service teachers on the use of educational comics in disaster education were examined. In this context, the research questions of the study are as follows:

- What are the opinions of social studies pre-service teachers about disaster education with educational comics?
- What is the experience of social studies pre-service teachers in preparing educational comics?

Method

Research Pattern

Qualitative research is the research in which data collection techniques such as observation, interview and document analysis are used, unlike traditional data collection methods (Best & Kahn, 2017, s. 258; Yildirim & Simsek, 2008). Qualitative research allows researchers to explore social issues without relying on numbers (Aslan & Guzel, 2018). Phenomenology is one of the types of qualitative research used to arrive at the basic structure underlying experience (Merriam, 2018). In the phenomenology design, it is important that the participants in the study have direct experience about the study subject (Patton, 2014, s. 104). In this study, phenomenology design was used to describe the views of social studies pre-service teachers on the use of educational comics in disaster education and to explain their experiences in the process with their expression.

Data Collection

Observation and interview, which are among the qualitative data collection methods, were used in this study. Before the interview questions were formed, the literature was examined. For the questions prepared, the opinions of two field experts, whose fields of expertise are social studies education and educational comics, were taken. Pilot interviews were conducted with the interview form shaped in line with the opinions of the experts. The interview form, which was finalized as a result of this process, was used as a data collection tool. The interviews lasted approximately 30-35 minutes. The interviews were conducted face-to-face and in line with the demands of the pre-service teachers between 12.00-13.00 in the classroom where they took the disaster education course. The interviews were recorded with voice recorders with the permission of the pre-service teachers in order to prevent data loss. In qualitative research using the interview method, it is important for the participants to trust the researcher. Because there is a relationship between the participants' trust in the researcher and their freer response to the questions (Glesne, 2012). Some precautions were taken in the study in order for the participants to trust the researcher. In this context, it was explained to the participants that they could end the interview at any time, that they were free not to answer the questions asked, and that code names would be used in the reporting phase in terms of confidentiality. In order to hide the identity of pre-service teachers, representative names were used by considering gender. Verbal consent was obtained from the pre-service teachers who participated in the research that they voluntarily participated in the research.

Another data collection method in the research is observation. Observation refers to watching the phenomenon to be studied in its natural environment and recording the results of observation (Patton, 2014). Pre-service teachers were observed by the researcher in the process of drawing educational comics. While drawing, the pre-service teachers were evaluated in terms of the structure of the comic, the creation of the scenario for disaster education, and grammar. Observation notes are presented in the findings section of the research.

Analysis of Data

An inductive approach was used in the analysis of the data. The inductive analysis involves finding and revealing patterns, themes, and categories in the data obtained in the research (Patton, 2014). Thematic analysis was preferred as the data analysis method. The thematic analysis involves conceptualizing the data and revealing the themes that can describe the phenomenon. To increase reliability in data analysis, it is recommended that the data collected by interview methods be analyzed by more than one researcher (Kvale, 1996; Merriam, 2018). While analyzing the data in this study, the interviews were first converted into written documents. These were evaluated with repeated readings by the author of the study and another expert. The statements in the documents are marked for coding. The generated codes were associated with the themes in the context of the research questions and presented in tables in the findings section.

Results

In the results section, the findings obtained as a result of the analysis of the data collected through semi-structured interviews and observations and explanations about these findings are given.

The data obtained from the interviews with pre-service social studies teachers were analyzed. For the use of educational comics within the scope of disaster education, four different themes, named "Educational Contributions", "Specific Contributions to Disaster Education", "Limitations" and “Experiences” have been reached.

Findings on the Theme of "Educational Contributions"

The codes for the theme of " Educational Contributions " are given in Table 1. When Table 1 is examined, it is understood that pre-service social studies teachers think that educational comics have various educational contributions.

Table 1. Codes for the Theme of Educational Contributions

Theme	Codes	Frequency
Educational Contributions	Attracting attention	20
	Increasing participation	17
	Making it easier to understand	16
	Increasing permanent learning	15
	Increasing motivation	12
	Developing the imagination	12
	Increasing curiosity	10
	Affordable	9

When Table 1 is examined, it is seen that the expressions of the pre-service teachers mostly converge on the point that educational comics are beneficial in terms of attention, participation, understanding and permanent learning. Pre-service teachers stated that the use of educational comics in educational activities would attract the attention of students. Mary attributed *the interestingness of educational comics to their colorful visuals*. Jamie stated that *comics will enable students to make visualizations in their minds with the help of visuals, thus attracting more attention to the problems*. Pre-service teachers stated that educational comics would positively affect active participation in the lesson. Roger thinks that *educational comics will increase participation because they contain humor*. Claire attributes this to the *colorful structures of educational comics*. They drew attention to the facilitating effect of educational comics to understand the course content. Brianna stated that *educational comics facilitate understanding by making the subject simple and concrete*. Jonathan stated that *creative comics make it easier to understand because they appeal to visual and verbal intelligence*. When we examine the table, we can see that social studies pre-service teachers think that educational comics have a positive effect on students' motivation, imagination and curiosity. Pre-service teachers see educational comics as economically accessible teaching materials.

Findings Concerning the Theme "Specific Contributions to Disaster Education"

The codes for the theme of "Specific Contributions to Disaster Education" are given in Table 2. When Table 2 is

examined, it is seen that pre-service social studies teachers stated that educational comics can have some specific contributions to disaster education.

Table 2. Codes for the Theme of Specific Contributions to Disaster Education

Theme	Codes	Frequency
Specific Contributions to Disaster Education	Empathizing with natural disaster victims	24
	Giving examples for disasters	21
	Easier teaching	18
	Child-appropriateness	14

When Table 2 is examined, it is seen that the expressions of the pre-service teachers mostly converge on the point that educational comics are beneficial for contributions to disaster education in terms of empathy, giving examples and easier teaching. Pre-service teachers primarily stated that educational comics improve empathy. Rose stated that *students can develop empathy by putting themselves in the place of the characters in educational comics*. Ted stated that *it would be easy to understand the emotions since the texts in the educational comics are supported by pictures*. Pre-service teachers stated that educational comics can be used while showing examples of disaster situations. Barney, think that *students can develop a bond with educational comics and visualize the events in their minds*. Rachel stated that *disaster situations that are not often observed can be illustrated in educational comics*. They think educational comics as a powerful aid in explaining difficult subjects. Joey mentioned that *some abstract topics are easier to understand with visuals in educational comics*. Tracy attributed the facilitation of teaching by *educational comics to the fact that educational comics attract the attention of students.* The pre-service teachers stated that the disaster contents that are not suitable for the age of the students can be easily visualized through educational comics. Jonathan stated that *educational comics can present subject such as earthquakes and fires, which are not suitable for children age and have negative content by cartooning*. Beth noted that *negative situations that cause pain, sadness, and fear can be illustrated by cartooning them.*

Findings on the Theme of "Limitations"

The codes for the theme of "Limitations" are given in Table 3. When Table 3 is examined, it is seen that the pre-service social studies teachers stated that educational comics may have some limitations. It is possible to collect the limitations of educational comics into two categories as "limitations on preparing educational comics" and "limitations on using educational comics".

While expressing the difficulties they experienced while preparing educational comics, pre-service teachers stated that they needed technological tools. For example, Kevin expressed this difficulty as "*I had to use my friend's computer*". Ashley stated that "*I drew by hand because I did not have a computer*". Pre-service teachers also stated that they had access problems. For example, Will stated that *the internet connection makes it difficult to prepare educational comics from time to time*. Claire stated that she *moved away from the scenario she had conceived when her internet connection was weak*. Pre-service teachers think that there will be some difficulties when using educational comics as teaching materials. Pre-service teachers stated that the use of educational comics can take

time. For example, Kate expressed this situation as "*educational comics may take a long time to read because they consist of many boxes*". Monica, on the other hand, stated that *not every student can read at the same speed, which would negatively affect the use of time*. Pre-service teachers stated that educational comics can provide limited information due to their nature. Wendy expressed this situation by stating that she *could not write enough information on speech balloons*. Bob stated that *when you write long sentences, the visual ground is closed*.

Table 3. Codes for the Theme of Limitations

Theme	Codes	Frequency of utterance
Limitations on preparing educational comics	Requires technological tools	20
	Requires internet access	16
	Time-consuming to prepare	11
	Requires creative thinking	6
Limitations on using educational comics	Time-consuming to apply	13
	Limited information capacity	12
	Weakening of classroom management	10

Findings Concerning the Theme of "Experiences"

The theme that emerged as a result of the analysis of the interviews and named "Experiences" and the codes of this theme are given in Table 4. Table 4 shows that pre-service social studies teachers have different experiences while creating educational comics within the scope of disaster education.

Table 4. Codes for the Theme of Experiences

Theme	Codes	Frequency of utterance
Experiences	Fun	26
	Creativity	24
	Vocational development	21
	Artistic perspective	16
	Technical glitch	10

When Table 4 is examined, it is seen that the teacher candidates mostly explain their experiences of creating educational comics with the expressions of fun, creativity, and professional development. Pre-service teachers stated that they had fun while creating educational comics. Ted expressed this as "*creating educational comics was the most fun part of the course process*". Tracy stated that *considering that we took lessons on disaster education, I can say that creating educational comics makes the process more fun*. Pre-service teachers stated that they felt compelled to think creatively while creating educational comics. Emily expressed this as "*creating educational comics requires serious creativity*". Claire stated that *creating educational comics may seem simple from the outside, but it definitely takes creativity.* Pre-service teachers stated that they developed professionally while drawing educational comics. Roger expressed this as *"I felt that I could be a better teacher during the*

creating educational comics". Mary stated that "*creating educational comics made me feel more professionally equipped."*

Findings on Researcher Observations

As a result of the instructor's observations, it was determined that the pre-service social studies teachers generally did not have difficulty in preparing educational comics scenarios and finding suitable characters for the scenario. In addition, pre-service teachers were able to transfer the things to be done before, during, and after the disaster into educational comics. It is thought that these situations can be explained by the fact that pre-service social studies teachers are well-trained in disasters. However, it was observed that some pre-service teachers had problems during the preparation of educational comics due to a lack of equipment. Since some pre-service teachers did not have a computer, they prepared comics in alternative ways. These alternatives are: using a friend's computer, using a phone or tablet, and drawing by hand (Figure 1 and Figure 2). It has been observed that this situation causes pre-service social studies teachers to lose time while drawing. It has been determined that pre-service teachers using phones or the tablets have difficulties in placing characters and speech balloons. It is thought that this situation affects expressing that preparing educational comics is time-consuming. Some structural mistakes were observed in the educational comics prepared by the pre-service teachers. Grammatical mistakes, inability to determine the order of speech, wrong speech balloon selection and scenario-movement inconsistencies are frequently observed structural mistakes. It has been determined that pre-service social studies teachers generally tend to include characters such as students, teachers, family members, and rescue workers in educational comics.

Figure 1. Hand Drawn Educational Comics Example

Figure 2. Mistakes in Educational Comics

Figure 1 shows an educational comic created by a pre-service social studies teacher who prefers to create educational comics by hand. Making these drawings took more time than drawing with digital programs. Mistakes on drawings made in digital environments can be easily reversed. However, this is more difficult with hand-drawn drawings. There are multiple mistakes in the educational comics frame in Figure 2. First of all, the mistake made in the speech sequence draws attention. Reading speech balloons in comics starts from the left and proceeds to the right. However, if there is a difference in height between the emoticon balloons, the reading is made from the balloon located above to the balloon located below. This is not taken into account in the drawing in Figure 2. Another mistake in Figure 2 is using a thought balloon instead of a speech balloon. Speech balloons are used when verbal expressions are used in comics (See Figure 3). The thought balloons (See Figure 4) indicate a character's thought and the reader thinks that other characters do not know these thoughts. It is understood that the wrong expression balloon was used in the example of the educational comics in Figure 2. Another mistake in Figure 2 is that the characters are depicted with their mouths closed even though they are talking. This reveals the scenario-action mismatch.

Figure 3. Speech balloons

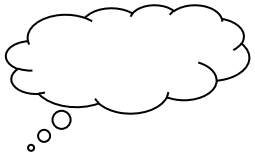

Figure 4. Thought balloons

Discussion and Conclusion

This study aims to reveal the opinions of pre-service social studies teachers on the use of educational comics in teaching disaster education topics. Pre-service social studies teachers highlighted some features of this teaching material as a result of their experience in preparing educational comics. According to the findings obtained in the

research, these features were gathered under two different themes disaster education-specific features and educational features. The statements of pre-service social studies teachers about the educational features of educational comics reveal that educational comics are interesting teaching material. In addition, pre-service social studies teachers stated that educational comics would increase class participation, permanence, and motivation. It has been emphasized that educational comics will facilitate understanding and develop imagination. These results are also supported by previous research on educational comics (Akanca, 2020; Crăciun & Bunoiu, 2019; Cicek Senturk, 2020; Hosler & Boomer, 2011; Rozkosz & Wiorogórska, 2016; Senturk & Simsek, 2021; Topkaya & Simsek, 2016; Yildirim, 2016). Pre-service social studies teachers attribute these features of educational comics to their colorful structures, the simultaneous presence of visuals and text, and the element of humor.

Another result obtained in the research includes the benefits of educational comics specific to disaster education. According to pre-service social studies teachers, one of the main benefits of educational comics regarding disaster education is that it facilitates empathy. The statements of the pre-service social studies teachers reveal that educational comics will be a good help when examples of disasters should be given. In addition, pre-service teachers stated that educational comics facilitate the narration of difficult subjects. However, it was emphasized by the pre-service teachers that the use of educational comics is more appropriate for children while providing disaster education. pre-service social studies teachers attribute these features of educational comics to their colorful structure, element of humor, and their ability to caricature events.

Another result obtained from the research is that educational comics contain some limitations due to their structure. When the expressions of the pre-service social studies teachers were evaluated, it was seen that these difficulties can be divided into two problems related to the preparation of educational comics and the use of educational comics. It is understood that the need for educational comics preparation tools and the fact that these tools require internet access are the points that pre-service teachers have difficulties with. In addition, some pre-service teachers emphasized that preparing educational comics is time-consuming and requires creative thinking. Similar situations emerged in the study of Akanca (2021).

Another result obtained in the research includes experiences with educational comics drawings. In the study, it was concluded that pre-service social studies teacher generally had positive experiences in the process of preparing educational comics. Accordingly, pre-service teachers had a fun process while preparing educational comics. In this process, their creativity developed and they showed professional development. Pre-service teachers have carried the artistic structure of comics to educational comics. These results are similar to some studies focusing on educational comics experience (Akanca, 2021, Gavaldon & McGarr, 2019; Ilhan, Kaba & Sin, 2021; Zaibon, Azman & Shiratuddin (2019).

According to the observations made within the scope of the research, pre-service teachers were able to use their proficiency regarding disasters while writing educational comic scenarios. However, it was observed that pre-service teachers made various mistakes in the process of preparing educational comics that were not suitable for the structure of the comic. It is thought that the source of these mistakes is the lack of grammar, lack of equipment, lack of attention, and time limitation of pre-service social studies teachers.

In light of the data obtained in the research, it was concluded that the educational comics maker should have some features. The first of these is to know the structure of comics and to grasp the aims of educational comics. In addition, proficiency and creative thinking for comics preparation programs are also important.

Recommendations

In line with the research results the researcher suggests that;

- more educational comics training should be given to social studies pre-service teachers.
- practical lessons on educational comics be given to other pre-service teachers as well.

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