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In support of our mission, there are no fees to submit or publish manuscripts so that cost will never be a barrier. Typeset and graphics are intentionally simple in order that the journal can be more easily accessed on a variety of devices worldwide to fulfill the mission of the journal.

I hope that the practices discussed in this journal will be helpful to you, our readers.

Sincerely,

Ann Cancilla Gaudino, Ed.D., Founder and Editor-in-Chief
eejeditor@gmail.com

With gratitude to our reviewers who serve the journal:

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Joy Myers, Shin Ji Kang, and Michelle Hughes

Abstract

A team of teacher educators conducted a phenomenological study to explore the perceptions of teacher candidates (TCs), their cooperating teachers (CTs), and university supervisors (USs) during and after they participated in a redesigned seven-week practicum that led directly into seven weeks of student teaching. Data were collected via two surveys with open-ended prompts and revealed three distinct themes across the three groups of participants: relationships, preparedness, and professionalism. Opportunities, presented by the redesigned field experience, were seized upon but in varying ways dependent on each group of participants (TC, CT, and US). The findings from this study are significant because unlike other studies that just examine the perspectives of one group of the triad, the goal of this research was to understand the perspectives of the entire triad (TC, CT, and US). Recommendations for teacher education programs interested in redesigning their field experiences are shared.

Keywords: *student teaching, teacher education, elementary education*

Dr. Joy Myers is an Associate Professor and Executive Director of James Madison University's Grow Your Own Initiative. She can be reached at myersjk@jmu.edu

Dr. Shin Ji Kang is a Professor in the Early, Elementary and Reading Education Department at James Madison University. She can be reached at kangsj@jmu.edu

Dr. Michelle Hughes is Professor Emerita of the Early, Elementary and Reading Education Department at James Madison University. She can be reached at hughesma@jmu.edu

Are They Prepared? Examining Teacher Candidates', Cooperating Teachers', and University Supervisors' Perspectives on a Redesigned Field Experience

An examination of what is included in effective teacher education programs has existed for over 40 years (Lehr, 1981). Darling-Hammond (2006) argues that teacher education programs that graduate well prepared teachers, have academically strong teacher candidates (TCs) as well as effective programs. Hauser and Kavanagh (2019) further connect these two aspects of teacher education programs by stressing that candidates' abilities to learn teaching practices is dependent on the use of effective teacher education practices.

One such effective practice, according to Dunst et al. (2019, 2020), is extensive student teaching which provides TCs opportunities to learn how to develop students' knowledge and skills in engaging ways. In fact, field experience is a signature pedagogy of many teacher education programs (Shulman, 2005). One type of field experience is practicum which often occurs in the semester(s) before student teaching. In contrast, student teaching is often the capstone of teacher education programs during which the TC begins by shadowing the cooperating teacher (CT) and over time takes on more teaching responsibilities.

Research suggests that student teaching prepares teacher candidates for future teaching (Darling-Hammond et al., 2010), shapes teacher retention (Gedzune, 2015), and is the most significant component of teacher education programs (Leung et al., 2013, National Council for Accreditation of Teacher Education [NCATE], 2010; Wilson & Floden, 2003). Although student teaching is often considered demanding (Caires et al., 2012), it provides opportunities for TCs to navigate their personal belief systems, knowledge, and competences (Hattingh & De Kock,

2008) as well as observe experienced teachers and develop relationships with them (Brown et al., 2015).

In 2010, the National Council for Accreditation of Teacher Education (NCATE) encouraged teacher education programs to be "fully grounded in clinical practice and interwoven with academic content and professional courses"(p. 11). This resulted in more attention being focused on the amount of time TCs spent in the field (National Research Council [NRC], 2010). Now, Standard R2.3 of the Council for the Accreditation of Educator Preparation (CAEP) calls for teacher education programs to create clinical experiences that will "…ensure that candidates demonstrate their developing effectiveness and positive impact on diverse P-12 students' learning and development…" (caepnet.org). Teacher education programs, accredited through CAEP, are being held accountable for their candidates' impact on children's learning and programs are considering how more time in the field might help meet this standard.

However, if the focus is TCs spending more time in the classroom, Brown et al. (2015) argues that more needs to be understood about the exact benefits, if any, as perceived not just by the TCs but by all stakeholders. Thus, the purpose of this study was to investigate teacher candidates' (TCs), their cooperating teachers' (CTs), and their university supervisors' (USs) perceptions during and after they participated/supervised in a redesigned field experience.

Literature Review

Revised Field Experiences

Many teacher education programs in the United States, and across the globe, have examined and altered the duration, timing, requirements, and connections of field experiences to university courses (Atkinson, 2004) resulting in restructured experiences (Colson et al., 2017; Wang & Odell, 2002). For example, Grudnoff et al. (2017) examined the impact of a redesigned

practicum experience and found that relationships, role transformations, and collaborative practice all led to reinvigorating the practicum experience for TCs. Other institutions have extended the length of field experiences, in part, because these changes can positively impact the learning process and success of TCs (Hascher & Kittinger, 2014; Temiz & Topcu, 2013) as well as improve candidate preparedness (Ronfelt et al., 2014).

To better understand the impact of extended field experiences, Dunst et al. (2019) conducted a meta-analysis which compared 10 or more weeks of student teaching (extended) with five to nine weeks (limited). The more time TCs participated in student teaching the more proficient they were in the use of teaching practices. In addition, more time student teaching also led to higher classroom quality. Spooner et al. (2008) surveyed TCs in a year-long internship and their peers in a semester-long student teaching experience. The TCs in the year-long experience reported better relationships with their CT as well as increased knowledge of school policies and procedures. However, the two groups did not differ in their perceived teaching ability. In another study that examined year-long student teaching, Colson and colleagues (2017), found that TCs who participated in an extended student teaching experience perceived themselves as highly confident in supporting student engagement, designing instructional practices, and facilitating classroom management. Furthermore, spending more time in the field could offset the shock that first year teachers may feel once they have their own classrooms, according to Kim and Cho (2014), who state the shock is a result of the gap in what was learned in teacher education programs compared to the reality of teaching.

Teacher Candidate Support

However, just increasing the hours in the field is not enough. The experience and mentoring ability of CTs is key to the success of field experiences (Baum & Korth, 2013; Korth

& Baum, 2011; Matsko et al., 2020) because CTs directly impact TCs' learning in practicum (Grudnoff et al., 2017; Mattsson et al., 2012). Furthermore, research suggests that TCs feel more supported when they can work one-on-one with their CT (Ambrosetti & Dekkers, 2010; Hamman et al., 2006). However, since programs vary in the length of their student teaching, opportunities for mentoring relationships may be significantly different. Thus, it is not surprising that Grossman (2010) argued that CTs are one of the most acknowledged, yet least understood, contributors to the student teaching experience.

In order to understand the complex mentoring work that CTs engage in, Matsko et al. (2020) surveyed CTs and TCs. They found that TCs felt better prepared to teach when their CTs modeled effective instruction and provided frequent feedback. Successful CTs also balanced providing TCs' autonomy and encouragement. Some argue that increased time in the field, with mentoring, can help TCs understand the realities of teaching resulting in them being better prepared to deal with the complex realities of today's schools, classrooms, and students (Spooner et al., 2008). However, more is not better if the extended time does not enhance the quality of learning (Melser, 2004) or if adding mentoring to the expectation for classroom teachers takes away from their main responsibility which is to instruct children (Korth et al. 2009).

One common criticism of teacher education programs is the perceived gap between theory (associated with university coursework) and practice (what happens in schools) (Beck & Kosnick, 2002; Grossman et al., 2009; Le Maistre & Pare, 2010). Establishing the right practice-theory balance can be challenging (Allen, 2009; Mayer, 2014). Thus, teacher education programs and schools must intentionally coordinate learning and teaching opportunities for TCs that help them shift from self-as-student to self-as-teacher (Holt-Reynolds, 1991). University supervisors (USs) and/or faculty can provide additional support to facilitate the balance between theory and

practice. These individuals often help TCs navigate the initial stress of not understanding a school culture and working with a CT. It is not uncommon for TCs to describe their field experience as filled with anxiety (Hascher & Hagenauer, 2016) since the profession of teaching itself is stressful (Prilleltensky et al., 2016).

Previous research has examined TCs' perceptions of extended student teaching experiences and CTs' thoughts on traditional student teaching models compared to redesigned field experiences, but no one has sought the input of all components of the field experience triad (TC, CT, and US). Bullock (2009) argues that only through sustained and systematic careful inquiry can we appreciate and understand the challenges of each role. Thus, in this study, we sought to answer the following question: What were teacher candidates', cooperating teachers', and university supervisors' perceptions of the impact of a redesigned field experience with extended practicum and student teaching?

Theoretical Framework

In the field experience literature, three people are recognized as key to success: the teacher candidate (TC), the cooperating teacher (CT), and the university supervisor (US). Each of these individuals, who together are often called a triad, brings different assumptions and expectations about the purposes of field experience within teacher education programs (Johnson & Napper-Owen, 2011). As researchers, we believe Vygotsky's (1978) assertion that learning is an inherently social process. Vygotsky also believed that learning resulted from not only assimilation and accommodation, but the social interactions among people. Like Vygotsky, Bakhtin (1986) believed that learning is a socially mediated construct that is reflective of one's social worlds. Learning depends on individuals negotiating understanding through the use of language (Kim & Cho, 2014). In learning to teach, the triad works together during field

experiences to socially construct their understanding of teaching and/or supporting teachers. Thus, a sociocultural lens provided a nuanced understanding of participants' perceptions of the impact of a redesigned extended practicum and student teaching experience. Furthermore, this lens provided insight into how individuals learn through their interactions with others, in this case, as novice and expert. Vygotsky proposed that scaffolded guidance from those with more knowledge could help novices internalize strategies and knowledge to develop cognitively. In this study, that development was related to the TCs' teaching capacity.

Methods

This phenomenological study (Schram, 2006) examined teacher candidates, cooperating teachers, and university supervisors' perceptions during and after they participated/supervised in a redesigned field experience. Phenomenology is best suited when researchers who seek to understand the experiences of individuals as they engage in common experiences (Creswell et al., 2007). In this paper, we identify the phenomenon as the experience of participating and/or working with candidates in the redesigned field experience.

The Experience

Our state decided to transition all public university teacher education programs from a 5-year MAT degree, in which the candidates minored in elementary education, to a four-year BS degree with an elementary education (ELED) major. With only a year to plan, teacher educators, including the three authors of this paper, worked within the ELED program at a large university in the Southeast, to redesign the program. We saw this as an opportunity to make some needed changes specifically to the final field experience which would now occur in the fourth year. We kept the following guiding thought in mind: professional knowledge and theoretical knowledge are complementary and of equal value. Knowing that a lack of explicit connection between

coursework and field experience is one of six key obstacles to professional learning (Zeichner, 1990) further propelled our work. We knew we wanted to provide future teachers more robust and extended experiences in the classroom *and* connect coursework to school-based experiences.

After monthly meetings for over a year, the ELED program decided to switch from two eight-week student teaching placements at two different schools in one semester to a Fall seven-week practicum that led directly into seven weeks of student teaching with the same CT within the same grade level at the same school. Then in the Spring semester, the TCs would have a second placement in a different school, grade level, and work with a different CT. Table 1 provides a summary of additional differences between the re-envisioned and traditional student teaching model at our university.

Table 1

Summary of Key Differences between Traditional and Redesigned Student Teaching Model

Traditional Student Teaching	**Redesigned Student Teaching**
State mandated major of Interdisciplinary Liberal Studies with an Elementary Education Minor	Elementary Education Major
5-year program	4-year program
14-week final practicum Fall	7-week final practicum leads into 7 week student teaching in the Fall AND Spring
14-week student teaching (7 weeks in lower grade, 7 weeks in upper grade) Spring	
1 course taken asynchronously	2 courses embedded purposefully within each semester

Furthermore, both the Fall and Spring seven-week practicums increased, over time, the number of days TCs were in schools (see Table 2). This revision was intended for TCs to be immersed in the field for two full semesters benefiting from the expertise of working with their CTs and US.

Table 2

Overview of the Semester in the Redesigned ELED Program

Week	**What TC's are Doing**
Weeks 1-4	Class: Monday and Thursday Practicum: Tuesday
Week 5	Class: Monday and Thursday Practicum: Tuesday and Friday
Week 6	Class: Monday and Thursday Practicum: Tuesday, Wednesday, and Friday
Week 7	Class: Thursday Practicum: Monday, Tuesday, Wednesday, and Friday
Week 8-14	Class: Online Check ins Student Teaching: Monday through Friday

During the Fall semester, the TCs took two courses concurrently while participating in the seven-week practicum: a literacy course and a curriculum course. LED 462: Disciplinary Literacy for Diverse Classrooms PK-6, was the third literacy course the TCs took and focused on developing their skills planning instruction across the content areas. The curriculum course, ELED 450: Planning, Instruction, and Assessment in the Elementary Education Curriculum, required TCs to design, implement, and assess curriculum using a backwards design model. The course work was completed prior to student teaching in the second seven weeks of the Fall semester. The Spring semester followed the same pattern but TCs took ELED 455: Home,

School, and Communities and ELED 485: Guiding Student Behavior. During both the Fall and Spring semesters, the course instructors collaborated closely to maximize TC's learning and minimize possible redundancy between courses.

Participants

The university decided to allow the entering first years in Fall of 2019 to choose either the new ELED major or stay with the five-year MAT since that was the program for which they had applied. Only 18 out of the 120 first year students chose the four-year ELED major. We began this study in the Fall of 2021 as a way to understand the impact of the redesigned field experience--- the first semester it was offered for our first group of ELED majors. Thus, we used purposeful sampling (Creswell & Creswell, 2018) to identify the participants.

Before the start of the study, the TCs (N=18) had completed three years of required coursework, including two practicum experiences and were fully eligible to student teach. Due to the small number of participants, and a need to protect their privacy, no demographic data was collected. All 18 TCs were placed in one of five elementary schools for the extended practicum/student teaching experience. The schools were located close to the university and students and families that make up the schools' population come from a variety of race, ethnic, and socioeconomic backgrounds, representing the diversity of the city as a refugee resettlement location. A few of the languages spoken in the homes of the students enrolled at the learning center include Spanish, Arabic, Kurdish, Russian, and Korean.

The cooperating teachers (N=18) were carefully selected by their principals for this unique practicum/student teaching experience. It was essential that all TCs were supervised by highly qualified CTs. The university supervisors (N=2) were all former teachers and had supervised traditional student teaching experiences. There were 38 participants in total. The

ELED program shared with principals, the CTs and the USs a description of the restructured field experience and a schedule.

We, the researchers, all have held leadership positions in the ELED program. The knowledge and perspectives gained from such experience served as motivation in designing the current study, which focused on the Fall 2021 semester, so we could make changes, if needed for the Spring 2022 semester. Because of our roles in the program, we had working relationships with some participants. However, none of us were instructors of the TCs at the time of the study but had taught them in previous semesters.

Data Sources

Data collection occurred through two open-ended surveys given to the TCs, CTs, and USs, after the first practicum placement (October 2021) and after the first semester of student teaching (December 2021). The timing of the survey distribution was key because the goal of the study was to gain insight into their (TC, CT, US) perspectives after practicum and again after student teaching to monitor the possibility of changes in those perceptions. In addition to understanding their perceptions, we hoped to use this data to make any needed changes before the TCs progressed into the Spring 2022 semester. Furthermore, in Fall 2022, TCs would no longer have a choice between the ELED major or the five-year MAT programs. So instead of 18 TCs we would have over 160 TCs participating in the redesigned field experience.

We created six different surveys in order to seek the responses from each group of participants during and after the field experiences. We chose a combination of forced-choice responses and open-ended responses because the intent was to qualitatively capture the participants' perspectives (Flick, 2006). For the forced-choice questions, participants had the

option of adding comments and/or other responses. All surveys were completely anonymously to help ensure candid responses.

The initial surveys, given to all participants in October, had some overlapping questions. For example, each group of participants was asked questions specific to their impressions of the overall field experience model, balance of coursework and field experiences, as well as about the integration of coursework. However, some questions, across the groups of participants, differed. For example, the TC survey questions focused heavily on how they managed the coursework during practicum, The surveys for the CTs asked about their perceptions of the TC's skill level at the end of practicum and their ability to balance field work and course work. The USs were asked to reflect the TCs' level of preparedness at the end of practicum before student teaching. The second survey, given in December, for all groups, focused on the participants' impression of the extended practicum and student teaching model and allowed space to make suggestions for improvement.

Data Analysis

We followed Creswell and Creswell (2018) coding procedures by reading and discussing participants' open-ended responses. This process was guided by our belief that learning is an inherently social process (Bakhtin, 1986). We began by individually examining the first set of surveys from each group, attempting to obtain a general sense of the data, and noting emerging themes. Then we did the same with the second set of surveys. Next, we met to discuss our individual analysis of the survey data and to identify categories that captured the patterns of the themes. Once a consensus had been reached on the themes, the data were coded using these categories.

Peer debriefing was used to enhance trustworthiness of the research findings. The two course instructors, who taught the TCs in the Fall semester, were chosen for this task since they were familiar with the goals of the study but were not participants. Peer debriefing included sharing a data analysis draft with each instructor and debriefing with them individually.

Findings

This study examined the perceptions of the field placement triad, which included the teacher candidates, cooperating teachers, and university supervisors during and after participating in a redesigned field experience. The data revealed three distinct themes across the groups of participants: relationships, preparedness, professionalism. Opportunities presented by the redesigned field experience were seized upon but in ways dependent on each group of participants (TC, CT, US). Furthermore, each group of participants also offered suggestions for future semesters which we categorized as "looking forward."

Relationships

The first theme that was prevalent across the surveys for triad members was relationships. Overwhelmingly, the TCs reported that the additional time in the redesigned field experience was a benefit specific to building relationships. A TC wrote, "More time in the classroom allowed me to form relationships with the students and allowed me to follow along better with what they were doing in school." Other TCs mentioned how the course design fostered relationships between the TCs. She stated, "I liked working with the same group in the two classes." Over the semester, the TCs felt more comfortable in their relationship with their CT. For example, on the mid semester survey, a TC wrote, "Maybe talk to the CT's about being gentle with the workload" implying that they did not feel comfortable broaching this subject with their CT themselves. However, by the end of the semester, the TCs were able to reflect on the

beginning of the semester noting the advantages of more time to implement lessons and learn from their CTs.

The CTs also saw the benefit of extra time in the field placement as positively impacting relationships. “I like how the [university] student gets to come and start meeting students, building relationships, and watching classroom procedures before they are in the classroom five days a week.” Another shared, “Overall I think it is good for student teachers to also be able to have the practicum experience with the same classroom so they can develop relationships with the students before jumping all the way into teaching.” Building relationships was seen as a huge advantage of this redesign by the CTs as well as the USs. A US wrote:

> I think the new model provides a great way for the student teaching candidates to get to know the students and cooperating teachers by participating in their practicum experience first. They are able to build a strong professional relationship with one another with the full semester model.

Overall, the triad found additional time in classrooms became the foundation of the positive experiences in the field.

Preparedness

The theme of preparedness was seen across the three groups of participants. The TC’s, in their survey responses, often mentioned how the courses they were taking, simultaneously as being in practicum, influenced how prepared they felt. One TC noted, “This combination of courses really allowed me to see how each subject can be blended together to maximize education time. It also gives me a vast amount of resources and the ability to justify my decisions.” Another TC saw the benefit of the courses in terms of being more active while in the

practicum writing, “Each class was hard but ran smoothly with each and allowed for greater involvement with my placement.”

However, not all TCs felt this way about their coursework. Several mentioned in the survey their frustration with planning lessons that they could not directly use in their field experience. A TC noted:

> The courses would be more beneficial if they were personalized to what my class is actually learning. I've spent half of the semester working on a unit plan that I will never actually use in the classroom because my teacher switched the order she was doing her units.

When the assignments in the courses did not align, the TCs felt their work was wasted and it did not contribute to them feeling prepared.

In contrast, the CT’s connected being prepared to spending more time in the classroom. For example, a CT shared:

> It was nice to have her here more and more days because we have been able to start planning for student teaching. She will, as a result, be able to start teaching part of the content her first week and thus be able to start teaching full time sooner.

Another CT responded to the survey specific to preparedness stating, “I think it is very beneficial to her experience student teaching and ready to hit the ground running and ultimately grow more as a preservice teacher.”

Many of the CTs in this study were previously cooperating teachers for candidates in the five-year ELED MAT program. Often, these past experiences shaped how they responded to the survey questions. For example, a CT wrote enthusiastically:

> I love this new model! I feel that my TC had a better understanding of our classroom community and routines. She was able to establish stronger connections with the students and the transition into student teaching was absolutely seamless! She also knew what we had been teaching throughout the semester, so she was able to bring in past learning experiences.

The two USs also had experience in the previous ELED MAT program. Midsemester, their survey responses were positive, but they were keenly aware of where the TCs needed to be in comparison to the previous TCs they worked with. Within the 18 TCs, the USs, who each worked with half of the cohort of candidates, saw how the group was split in terms of their preparedness after practicum. "The candidates who have been involved and proactive in working with students are ready to roll! The very few who have been a bit more tentative may find student teaching more challenging." The USs also noted other concerns to watch for in the next seven weeks, which was student teaching, such as using the lesson template to guide planning and adhering to deadlines. However, after seven weeks of student teaching, one US shared, "They are prepared to begin taking on teaching responsibilities earlier and feel more comfortable doing so."

In general, the CTs and USs believed the TCs were ready to assume the responsibilities of a teacher. Furthermore, the coursework combined with the extended field placement allowed the TCs to demonstrate their knowledge and skills adding to feelings of preparedness.

Professionalism

The final theme reflected in the data from all three groups of participants was professionalism. For the purposes of this study, we defined professionalism as the disposition of an individual who was engaged in behaviors that were expected of that position. In addition, the

frequency with which these behaviors were demonstrated suggest a commitment to the profession. Within our ELED program, faculty have identified a number of professional dispositions that teacher candidates are expected to achieve by their senior year. These include, but are not limited to: replies to colleagues, professors, and supervisors in a timely and respectful manner; arrives on time; sets appropriate priorities; meets deadlines; and proactively addresses issues.

As we reviewed the data from the TCs, CTs, and USs, we discovered a pattern that suggested some of our TCs were not exhibiting the professionalism we expected. While most of the CTs indicated they believed their TC was prepared to move into their next placement in the Spring semester, some offered suggestions. For example, one CT wrote, "Stress the importance of professionalism. State the importance of getting to school on time, being assertive, and walking around the room to help students." Both USs echoed concerns about professionalism. One wrote, "The maturity level is not quite where I would like it. I find them asking 'Do we have to…' rather than 'Can we…'; [they're] doing just what is required and not wanting to go beyond." The second US expressed a need for a few TCs "…to adhere to deadlines…"

Some of the TCs' survey responses showed a lack of understanding regarding the expectations of the teaching profession. One TC seemed to categorize herself as a student more than someone entering a profession. She stated, "I have been extremely disappointed [with] not being able to follow [the college's] breaks… we should not be obligated to stay all by ourselves in [city] when all other [college] students are enjoying their well-deserved breaks." This desire was mentioned by another TC who wrote, "Our breaks should line up with the [college's] schedule." These data caused us to question whether the level of professionalism we expected was present in all the TCs.

Looking Forward

In the final survey, we asked members of the triad to offer suggestions on ways to improve the redesigned field experience. The TCs recommendations tended to focus on their needs as seniors in college. For example, multiple TCs requested that a few excused absences be built in. Others recommended ways the courses could be restructured so that they were connected but did not overlap in such a way that it felt redundant (i.e., completing two similar unit plans).

The CTs noted issues with the technology. For example, they did not think the learning management system was user friendly. A CT shared, "the documents that were sent to us were not in a format we could easily access ... so there were extra steps we had to go through to give the required feedback." In addition, although the course titles for the Fall and Spring semester were shared with the CTs and USs, the CT survey responses hinted that they were unclear what expertise the TCs should already have. For example, several CTs stated that the TCs would benefit from a class on behavior management, not remembering that that course would be offered in the Spring semester. The USs also offered suggestions regarding the number of days each week they thought the TCs should spend in schools as part of the "scale up model" of practicum to student teaching.

Discussion

The aim of this research was to uncover the triad's (TC, CT, and US) perceptions of a revised field experience. We identified three themes from the data which caused us to extrapolate why these themes emerged. Relationships, we believe, can be easily explained. Conclusions from many studies find that increasing time in the field enhances the relationships within those experiences (Colson et al., 2017; Grudnoff et al., 2017; Spooner et al., 2008). All members of the

triad benefited from extended time with each other in their roles as novice or expert. The second theme, preparedness, echoes other's work specific to how student teaching shapes TCs' perceptions of their preparedness to teach (Brown et al., 2015) and how they see their role as educators (Hattingh & De Kock, 2008). Similar to Dunst et al. (2019), both the CTs and USs found that the more time TCs engaged in the field, the stronger their teaching quality. In addition, the revised field experience provided more opportunities for the CTs and USs to identify areas in need of growth while supporting the TCs' developing skills (Spooner et al., 2008).

When considering the theme professionalism, two different explanations are possible for this finding. One is maturity. The TCs in this revised field experience entered student teaching a year earlier than students in the sunsetting Five Year MAT Program. Could the data be attributed to the fact that these TCs were younger than previous students and therefore, did not see themselves or act as professional as the older MAT students with whom many CTs and USs had interacted? A second possibility might be that the TCs did not have enough exposure to the profession to internalize expected dispositions. Bandura (1977) proposed that individuals need direct experience, observation, and exemplary modeling with feedback to learn and develop skills. In their first field experience as sophomores, TCs had one day of face-to-face practicum. However, due to COVID, their second practicum in Fall of 2020 was completely online and the quality varied greatly. The third practicum, in the Spring 2021, was face-to-face for some TCS and virtual for others. Therefore, could it be that the lack of professionalism that the data showed was attributed to a lack of direct experience, observation, and exemplary modeling?

This study is limited in that we only collected data from one small cohort of TCs, CTs and USs during the first semester of the revised field experience. Now that we have multiple

cohorts in the ELED major, it would be beneficial to conduct this study with a larger group of students, across multiple cohorts, to build generalizability.

Implications

Temiz and Topcu (2013) argue that to be an effective teacher in the future, TCs must have strong teacher education programs. Based on the findings from this study, a review of the literature, and reflections of the authors, we identified implications for our ELED program and offer considerations for other teacher education programs specific to potentially revising their field experiences.

Our ELED Program

Based on the data we collected, and conversations with the course instructors as part of peer debriefing, some of the changes the ELED program and the redesigned field experience worked. For example, extended time in the field added to relationships being built and feelings of preparedness. However, one area that needs attention are the TCs' professional dispositions. While they are still college students, the ELED program needs to find ways to help TCs realize that their senior year is not a typical college senior year; they must meet the expectations and responsibilities of being a teacher as part of the redesigned field experience.

In addition, we believe it is important to consider the triad's feedback on course content and course sequence. Next steps include exploring how the courses could be restructured so that they are connected without being redundant (i.e., completing two similar unit plans). We will also review the course sequence to see if the classroom management course could be offered earlier in the ELED program since that was suggested by several CTs.

Beyond Our Program

This study contributed greatly to our understanding of the new four-year ELED program and its redesigned field experience. For those considering changes to their existing teacher education program, here are the lessons we have learned.

First, involve all stakeholders in conversations about what is currently working and ideas for improvement. It is essential to identify mutual goals and consistent expectations so teacher education programs and K-12 schools, together, can provide the highest quality field-based experiences for candidates. Collaboration between universities and schools enhance the relationship between theory and practice while providing benefits for all involved (Allen et al., 2013; Baum & Korth, 2013). Furthermore, we suggest explicitly outlining the roles and responsibilities of TCs, CTs, USs, and faculty. By including all members of the triad in our work, we as teacher educators, are sending the message to them and others that their thoughts and opinions are valuable.

Second, we suggest examining the support that your program is offering stakeholders. Forgasz (2017) argues that the way to improve candidates' student teaching experiences is to give more attention to those who support them in the field, such as CTs and USs. In addition, we encourage you to consider what opportunities they have access to specific to mentoring (Loughran, 2013).

Third, if you are considering revising any aspect of your teacher education program, we recommend creating a manageable timeline. Although we had hoped to have two years of conversation about the new four-year ELED degree, which would have given everyone involved a chance to create meaningful and feasible revisions, that time frame was condensed into a year. As a result, many of our plans needed to be abandoned to meet the new deadline.

Conclusion

Spooner et al. (2008) argued that when considering field experiences, it is important to look at the "value added" to the TCs, the schools, and the children. We argue that faculties' understanding of TCs' thinking during field experiences, as well as the perceptions of CTs and USs, can inform how to better structure learning experiences that will best contribute to the development of TCs' competence, professionalism, and teacher identities. As teacher educators, we do not and cannot operate in isolation. If we ignore any one aspect of the triad, we will be unable to work towards cultivating equitable education systems or improving future teaching success.

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Augmented Skills of Educators Teaching Generation Z

Evangelin Whitehead

Abstract

Learners from different generations have enrolled and graduated from educational institutions for many decades, but educators have been using the same strategies despite what generation they teach in their classrooms. A new generation of students has occupied today's classrooms who are called *'*Generation Z*'* or Gen Z for short, and they are colloquially called *'*Zoomers'. They have unique characteristics and expectations, and they were raised with technology. They are digitally connected all the time, and it is necessary to check the quality of education given to them. Educational quality is a crucial topic worldwide and it is the need of the hour to discuss the quality of educators. To a large extent, teachers are considered the key factor in determining, and improving the quality of our educational systems. Presently, our teachers are expected to provide a quality hybrid delivery of teaching that best fits Gen Z learners. In the present century, teachers face greater challenges than ever before. The augmented skills of educators with modern, innovative, and creative strategies are the most in demand in this digital world. As new skills and technologies take over all the fields, educators also need to up-skill and re-skill themselves. This white paper discusses the augmented skills of the educators who teach Generation Z and the future generations to come.

Keywords: *Gen Z, Zoomers, hybrid instruction*

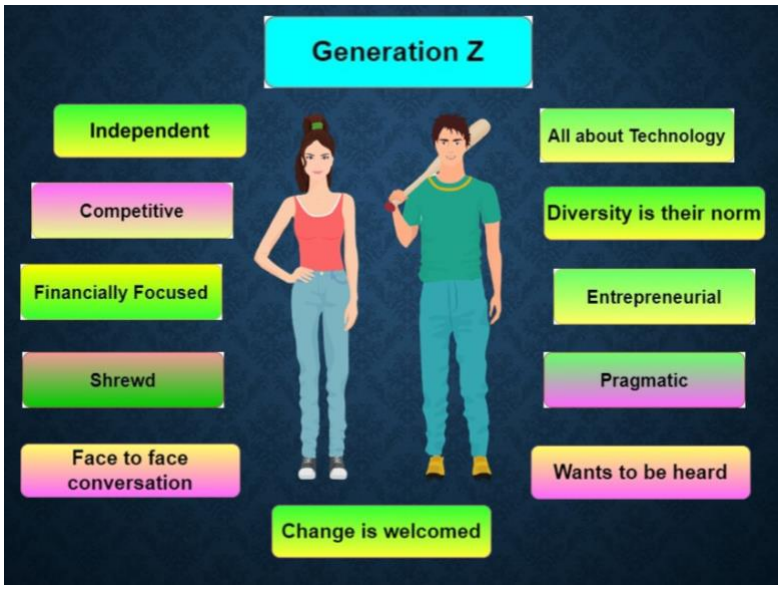
Dr. Evangelin Whitehead is a Professor in the Department of Education, Chennai, India. She can be reached at: eva.arul@gmail

Tom Hierck, an Education Consultant and Author, writes that, " 21st Century kids are being taught by 20th Century adults using a 19th century curriculum and techniques on an 18th century calendar." He calls it the “Systemic Dilemma.” Let us first consider today’s learners before discussing today’s and tomorrow’s educators. Today’s classrooms are occupied with ‘Gen Z’ers.’ Seemiller and Grace (2016) state that Generation Z considers themselves loyal, thoughtful, compassionate, open-minded, and responsible.

People who were born between 1960 and 1980 are called "Digital Immigrants." A digital immigrant is a person who was raised prior to the digital age. These individuals are often in Generation X. They did not grow up with computing or the internet, and so have had to adapt to the new language and practice of digital technologies. The digital age started somewhere around the 1970s when personal computers were introduced. People who were born between 1980 and 2000 are called "Digital Natives”. This generation of people grew up in the era of technology, including computers and the internet. Digital natives are accustomed to technology and computers from an early age and see it as an essential and fundamental part of their daily lives. Millennials, often known as Generation Y were born between 1980 and 1994. Generation Z is the newest generation born between 1996 and 2015. Our schools and colleges are now occupied by this Generation Z group.

Figure 1

Characteristics of Generation Z



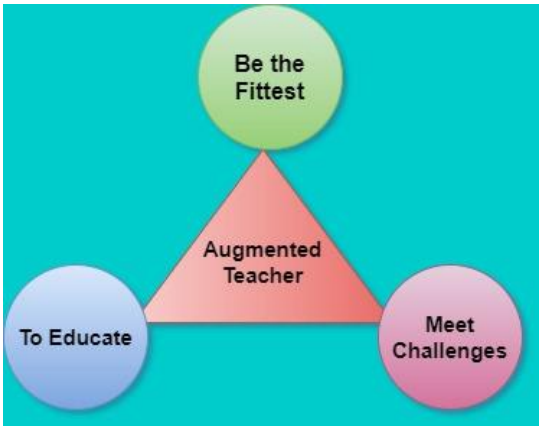
Our Gen Z'ers are relaxed and very flexible in their learning environments, they are multimodal learners; they have shorter attention spans and they enjoy informal and stimulating environments. They prefer active learning and they are good at discovery learning. They are multi-taskers and they prefer interaction and collaboration. They are techno friendly and techno dependent. They are driven by instant gratification, and are mostly confident and achievement-oriented. They learn through all five senses and are always in need of on-demand training.

We talk a lot about 21st century learners and their knowledge, skills, and learning preferences. But we talk less about the qualities of the teachers in the present scenario. Should teachers have 21st century mindsets? Are they life-long learners? Are they adventurous, innovative and imaginative? Are they really outsiders to traditional systems of learning? Do we continue to value what teachers know over who they are? If we value who they are, how might we attract these vibrant role models to teaching? To answer these questions, we must analyze

the quality and skills of our educators. Our teachers were the ‘Sage on the Stage’ earlier. They are now referred to as 'Guide by the Side,' 'facilitators, resource persons,' and 'co-constructors of learning.' To teach these ‘Gen Z’ers, the 21st century teacher should be augmented with multiple layers of skills. What is augmentation? Augmentation is the noun for any process or amount that makes something bigger or greater (Oxford Dictionary). Qualification and experience alone are not sufficient for today’s teachers. They must be augmented with multi skills for proficiency. “The key competences of 21st century teachers are not finite and their development should be supported by transversal capabilities and skills such as critical thinking, creativity, sense of initiative, problem solving, risk assessment, decision-making and constructive management of feelings” (Gordon et al., 2009, p.26).

Figure 2

Three-dimensional Development of an Augmented Teacher



A three-dimensional development is required for an augmented teacher in the 21st century. 1. She must be fully educated and qualified. 2. She should be the fittest to educate and impart learning to the students. 3. She must face all challenges. The significance of professional development is a never-ending process. Professionals cannot settle and stop learning after obtaining a graduation and starting a career. Wagner (2008) refers to the skills of augmented

teachers as survival skills, and he lists them as: critical thinking and problem solving; agility and adaptability; collaboration and leadership; initiative and entrepreneurialism; accessing and analyzing information; effective oral and written communication; and curiosity and imagination.

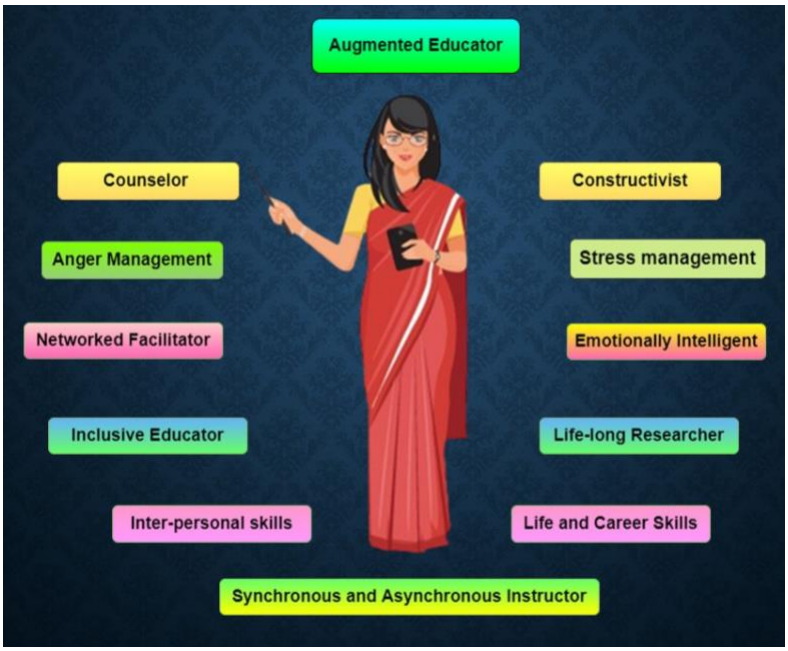
The Mudaliar Commission Report (1952) stated, "We are convicted that the most important factor in the contemplated educational reconstruction is the teacher, his personal qualities, his educational qualifications, his personal training, and the place he occupies in the community." In a research survey, Boag (1989) found that the effective teacher has the following 15 most rated qualities: 1. Enthuse students. 2. Treat them as individuals. 3. Know the subject. 4. Be loving and warm. 5. Teach to learn. 6. Empathize with students. 7. Relate to others. 8. Be fair, firm and flexible. 9. Be organized. 10. Prepare students for life. 11. Manage classroom. 12. Have high self-esteem. 13. Have a sense of humor. 14. Be a complete person. 15. Take risks. According to the National Board for Professional Teaching Standards (NBPTS, 2002) in the United States, five core dispositions are necessary for effective teachers. They stated the five fundamental claims as: 1. Teachers are committed to students' teaching and learning. 2. Teachers know the subjects they teach and how to teach those subjects to students. 3. Teachers are responsible for managing and monitoring student learning. 4. Teachers think systematically about their practice and learn from experience, and 5. Teachers are members of learning communities. To be an effective teacher in the new paradigm, according to Trilling and Fadel (2009), one must shift from teacher-directed to student-centered learning, from direct teacher instruction to interactive exchange with and among students, from teaching content knowledge to giving students, the necessary skills and from teaching content to problem solving processes. The new paradigm of teachers is augmented with the new skills of this digital world. A good teacher can instill a love of learning, inspire hope, and ignite the imagination.

Methodology

The construction of this article is purely based on primary and secondary data. As a primary source, a few instructors from the schools, colleges, and universities were interviewed with open-ended questions and their opinions and professional development activities. The sources of secondary data are research articles published in international, national, and local educational journals, e-books, websites, and general reports. Performance appraisal has become a term used for a variety of activities through which organizations seek to assess employees and develop their competence, improve performance, and allocate rewards (Fletcher, 2001). Hence, current performance appraisals of some of the universities in India and abroad were referenced to determine the required quality and skills of the educators**.** Desirable characteristics of an augmented educator are as depicted in Figure 3 below and discussed in subsequent sections of this article.

Figure 3

Characteristics of an Augmented Teacher

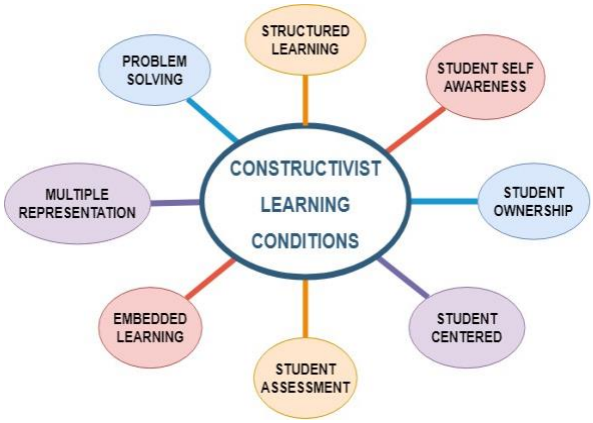


Constructivists

The teacher as a Constructivist gives opportunities to her learners to construct their own sense of what is being learned by building internal connections or relationships among the ideas and facts being taught. Constructivist teachers compare old views of knowledge to new constructivist views. In this view, knowledge is produced from existing beliefs and experiences. A constructivist teacher allows her students to take control of their learning. Constructivist classrooms provide learners with opportunities to plan and direct their learning.

Figure 4

How a Constructivist Teacher Creates a Learning Condition



In a constructivist's classroom, the learners are not passive recipients but active participants and the center of instruction. She creates a democratic learning environment. All activities are designed to be interactive and student-centered. She facilitates a process of learning where learners are encouraged to be responsible and autonomous. Reeve, Ryan and Deci (2004) suggest that it is important to create an environment where one may develop a sense of ownership and curiosity and that may, in turn, contribute to students' capacity to be life-long learners. A constructivist teacher creates a platform for life-long learning and she presents

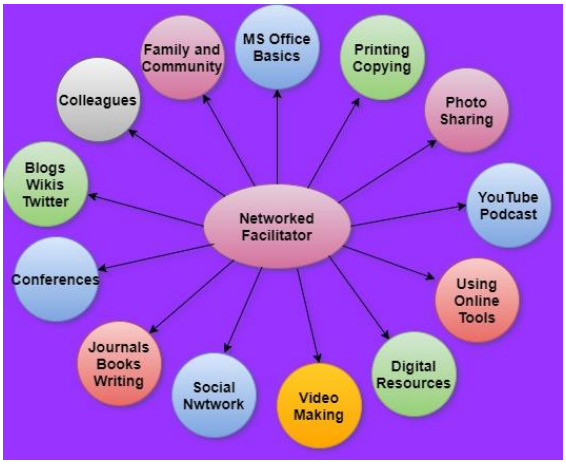
problem concepts of emerging relevance to her learners. She focuses, structures and promotes learning around primary concepts. A constructivist teacher always seeks and values learners' ideas. She adapts curriculum and teaching styles to address learners' suppositions. She makes valuable and standardized assessments on her learners' learning and gets effective feedback.

Networked Facilitator

A networked facilitator moves fluidly between the physical and virtual networks to communicate, collaborate, and share ideas, data, strategies, and information. She is learner-centered and knowledge-centered, and supports the development of technological pedagogical content knowledge in the context of the needs of the learners. She creates a congenial environment in her classrooms where creativity flourishes. She changes and challenges herself to create a learning environment where her learners feel safe to share novel ideas. She promotes flipped and blended learning. She collaborates by sharing experiences in teaching and provides effective peer critique of pedagogy and assessment practices. The graphical image (Figure 5) illustrates the different characteristics of a networked facilitator. She is thorough in computer and mobile operations, and an expert in printing, copying, and photo sharing. She creates live or recorded YouTube and podcast streaming, and is knowledgeable about all digital resources, adept at social networking, and uses learning management systems.

Figure 5

Characteristics of the Networked Facilitator



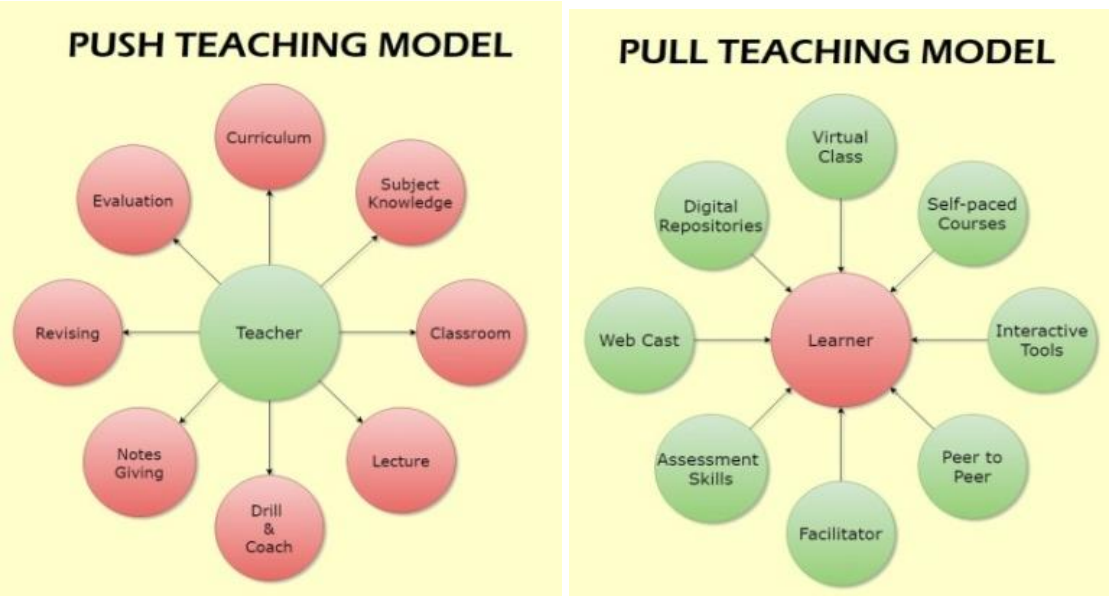
Synchronous and Asynchronous Instructor

This instructor has real time interactions with the students online. She gives and receives instant feedback, answers, acknowledgement, and questions from her learners. She is more connected, as with like face-to-face interactions. She establishes a sense of community, communication, and interpersonal participation. She uses audio tools, chat, broadcasting tools, interactive multi-media, phone, Whatsapp, podcasts, slideshows, PPT, teleconference, video conference, and webcast etc. She is good at asynchronous platforms, also allowing her students to learn at their own pace, while sending effective materials to them. She uses MOODLE or other platforms to educate her learners. She uses interactive teaching methods like flipped learning, blended learning, collaborative sessions, gamification, case studies, role plays, video lectures, and social media for discussions using learning management systems with interactive tools like Edpuzzle, Padlet, Whiteboard and Wakelet.

Push and Pull Teaching Models

Figure 6

Push and Pull Teaching Models



Traditional methods of teaching, the exclusive use of pushing methods, are no longer optimal. The present teachers are not 'pushy' anymore. They are using 'pull' dynamics in their physical and virtual classrooms as well. The objectives of learning are very clear to the learner in the pull model, and the teacher provides an engaging and valuable experience to the learners. If we look back, Operation Blackboard Scheme in 1986 introduced attractive learning aids to school students. Servaskisha Abigyan in 2001 brought Universal Primary Education and introduced active learning. The ABL and ALM methods were introduced. Figure 6 illustrates the differences between the push and pull models of teaching.

Emotional Intelligence

Lemov (2010) stated that a good teacher should be a self-oriented, well-read individual who creates a positive and emotionally safe environment in the class and addresses the whole

classroom. He also claimed that only then would the teacher be effective and productive. Augmented teachers are embedded with emotional intelligence with which they create a sense of self-awareness and identify their own emotions and thoughts. In the human brain, the limbic system is a seat of emotions, particularly the amygdala which is the spot of emotions in the brain. It regulates autonomic or endocrine function in response to emotional stimuli and is also involved in reinforcing the behavior of a human being. Limbic system management is a vast and special area, and it is very popular among educators. The facilitator with emotional intelligence can efficiently use the limbic system of students to address cortex educational messages. With thorough knowledge of the limbic system and its functions, augmented teachers effectively deal with the emotions of their students.

Figure 7

Aspects of Emotional Intelligence in the Augmented Teacher

Self-esteem is the term used to describe how we view ourselves and how much we regard ourselves. The word "esteem" means “to regard highly or favorably.” When I apply esteem to myself, then I highly regard myself. When it’s low, I regard myself lowly. Augmented teachers never confuse self-esteem with humility, and they are never discouraged when faced with difficulties. The augmented facilitator is clear in this concept. She feels very confident about getting up on stage to perform. She feels confident regarding her work skills.

The Augmented Teacher has assertive skills, maintains good communication in personal and work relationships, and has the ability to quickly establish and maintain effective interpersonal relationships. She has the ability to manage anxiety and improve performance under pressure. She has the ability to understand and accept differences in others and diverse issues. She has good decision-making skills and is capable of planning, formulating, and implementing effective problem-solving procedures in stressful situations. Applying educational principles and personal practical knowledge helps a teacher to take decisions in challenging and tricky situations inside and outside the classroom. She has an admirable leadership quality as an ability to positively impact, persuade, and influence others. She has the driving strength to direct energy and motivation to accomplish personal meaningful goals. She is augmented with excellent time management skills to meet goals and assignments. She maintains good work ethics and is able to complete tasks and responsibilities in a timely and dependable manner. More than anything, she has good emotional management skills to control and manage emotions and improve performance under stressful conditions and situations.

Stress Management

Today, stress comes from all sides. It shatters relationships in workplace, undermining the overall culture. Augmented teachers have effective stress management and fear management skills. They engage in healthy lifestyle behaviors by reducing stress that occurs in their workplace, home, and society and they maximize the likelihood of living a long, healthy life. They practice coping and cognitive restructuring models to recognize maladaptive thoughts that disturb their mood, and they change them to more adaptive, rational thought patterns to improve their mood, reduce stress and negative emotions.

Social and Interpersonal Skills

Figure 8

Attributes to Improve Social and Interpersonal Skills

When it comes to interpersonal skills, a facilitator needs to master her communication skills. A newborn baby first listens to the sounds of his mother's voice, father's voice, and other sounds. As a result, listening is the first skill. Then he starts speaking, and he gets the second skill of speaking. Then he goes to school and starts reading the alphabet, words, and sentences. The supreme skill of writing comes finally. In this way, he learns his mother tongue and is very fluent in all communication skills. But when it comes to learning a second language, the process of acquiring skills is completely opposite. Learners first read and write, and they ignore listening and speaking. It is the reason why people struggle to learn a second language. A good teacher always listens first. She sets her mind to listening to others. Good communication is the key to success. As referred to in the NEA (2012) report, "communication competencies such as clearly articulating ideas through speaking and writing are closely linked to collaboration skills such as working effectively with varied teams, making necessary compromises in order to achieve a common goal and taking ownership and shared responsibility for collaborative work" (p. 14).

Non-verbal communication is another great skill for a facilitator. An augmented teacher has the ability to build rapport with various sections of society and create networks of people. A teacher with good emotional intelligence manages herself with self-instigations, builds up good self-inducement, is daring in her ventures, and does not get discouraged. She manages to get along with others while also managing her career and establishing her own fame and reputation.

Emotional Management

Augmented teachers practice self-control abilities to resist inappropriate behavior, dealing effectively with angry emotions, and they absolutely develop patience. They try to understand and accept learners' moods, emotions, drives, strengths, and shortcomings as well as to see how these affect their learning and behavior and act accordingly. Modelling calm behavior is the best practice in managing anger issues inside the classroom. They stay calm in crucial situations, and they do not shout and lose their temper, which may escalate the situation. They avoid arguing with the angry student or threatening him. They are very cautious about their body language, like avoiding crossing their arms, clenching their fingers, or placing their hands on their hips. They try to open the conversation with a positive statement and do not indulge in any conversation with the learner until she gets calm. They create a safe environment for handling situations that may be outside the classroom but not in a private setting. Compassionate mentoring plays an important role in guiding students toward consciousness about rage, sustaining the focus on rage, and dealing with the emotional fallout from it. They know how to manage their emotions. They find ways to handle fears and anxieties, anger and sadness. Teachers' eyes are the trackers, more powerful than any electronic device to track the emotions and learning interests of their learners in the regular classrooms. In the virtual classroom, it is possible to do the same when students are required to have their laptop cameras turned on.

Counselor

A teacher as a counselor develops rapport with her students, and this is the first quality of an excellent teacher. She makes her students feel comfortable in her presence, at ease, and starts conversations. She maintains a good combination of verbal and non-verbal communication. She listens to her students carefully and does not interrupt the flow of thought. Through paraphrasing, she provides clarity to her students' thoughts. Instead of providing ready-made solutions on the spot, she makes her students think about ways to overcome the problem. Teachers with great counseling skills have a high level of integrity and trustworthiness for their students to share their most troubling issues, and they never share it with anyone or spread gossip. The teacher has active listening skills and shows a genuine interest in what her students tell her. She has good practice of self-control, shows patience and supportive body language when responding to the student's cues.

She evaluates her students objectively, with no personal bias based on their academic records or personalities. She understands the issue from the student's perspective as she is very empathetic and exploratory. She also has the skills to develop the conversation to make the student come out completely to find a solution. She maintains complete confidentiality. She makes her students understand that the information shared will remain confidential and not be disclosed to anyone. However, if the issues shared are harmful, then she should inform her management. Learners spend their entire growing years in schools and colleges with their teachers, and their teachers have a significant role to play in shaping the personalities of their students. We have a general opinion that counsellors are needed for students with complicated issues. Special trained counsellor recruitment is very common in western countries. But teachers are often the first source of support for students.

Research Skills

Herzallah (2011) stated that teachers' professional development activities include practicing teaching as a core activity, reflecting on their own and others' teaching practices, doing action research, attending lectures and workshops, participating in professional conferences, and developing communication skills. Research augmentation is an important and inevitable aspect of a present teacher. The research desire is there in the minds of all the teachers who like career growth. Developing effective skills does not happen overnight, and they extend their hard work until retirement and even after. Research is a group activity today. In the field of modern research, educational institutions and individual instructors have research ratings in the research field. The institution's rating increases with the individual rating. The answers to questions like: How many A* papers does a professor have? How many Scopus and Web of Science papers does she have? How many citations does she have? What is her H index and i10 index? It all decides her rating in research, which is reflected in her institutional rating. Hence, it is the educational institutions' high responsibility to provide financial and administrative support to faculty in order for them to continuously improve their research skills through activities such as research publications, participation in research conferences, and so on.

Develop an Inquiring Mind

An inquiring mind is a key skill in a changing and challenging world. The teacher with an enquiring mind always goes beyond the subject matter and tries to look at the bigger picture. People with an inquiring mind are constantly seeking out new information and are interested in novel advancements, concepts, insights, and perspectives. As a teacher, it is important to engage with the thriving academic and scientific community as much as possible and attend conferences, seminars, and workshops for teachers whenever possible in order to develop expertise in their

field. Researchers plan for a well-defined research strategy and methodology and they are adaptive to new methods.

Research Writing

Figure 9

Cycle of Research Writing

Researchers spend years of their lives building upon their research. But when it comes to academic research writing, many of them still struggle. Effective research writing is one of the crucial steps in getting a paper accepted. A researcher can have very effective and useful research, but excellent research communication, that is, research writing, will only reach her reader community. Research augmented teachers are efficient in research writing. They plan properly, brainstorm concepts and ideas, use graphic organizers, and prepare an outline. They revise writing by reorganizing it, refining word choices, and rearranging paragraphs. They again rewrite the paragraph with additional information. In the editing stage, they perform self-assessment, peer edit, and proofread. By presenting this paper to a journal, they seek to get it selected and published. Researchers often refer to and have a membership ID in the following repositories:

Table 1

Repositories

EGYANKOSH	www.egyankosh.ac.in
NATIONAL DIGITAL LIBRARY OF INDIA	www.ndl.iitkgp.ac.in
SHODHGANGA	www.shodhganga.inflibnet.ac.in
ESHODHSINDHU	www.ess.inflibnet.ac.in
SHODH SHUDDHI	www.pds.inflibnet.ac.in
GOOGLE SCHOLAR	www.scholar.google.com
WIDWAN	www.vidwan.inflibnet.ac.in
RESEARCHGATE	www.researchgate.net
ORCID	www.orcid.org
SCOPUS	www.scopus.com
PABLONS	www.publons.com

Life and Career Skills

Figure 10

Life and Career Skills

Life and career skills involve in learning how to be adaptable to changes, flexible, self-directed, to manage objectives and time, work independently, engage with others effectively, lead and to act responsibly as a leader, (Partnership for 21st Century Skills, 2010, Appendix B). A 21st century teacher is augmented with the qualities of leadership and responsibility. Skilled teachers are leaders for their students. They are student friendly at the same time they enhance their instructional quality both inside and online classrooms. They collaborate, research, mentor, innovate and advise their learners. They are very flexible and adaptable in their classrooms. They effectively navigate the constant changes in the teaching and learning process and show novelty in the uncertainty that occurs in teaching. They always look forward to accomplishing their tasks and extending their endless support to the learners. They are augmented with the ability to manage learning tasks without having them directed by others. They always have a conscience that their nation is developed in their own classrooms. They actively participate in societal issues and never hesitate or fail to present their perspectives. They have great accountability for their tasks, responsibilities and accomplishments. The augmented teacher is solely responsible and accountable for creating and implementing the curriculum, grading and testing policies, assignments and assessments, and many other educational requirements and implications. They practice these qualities as life-long skills for their profession and personal life.

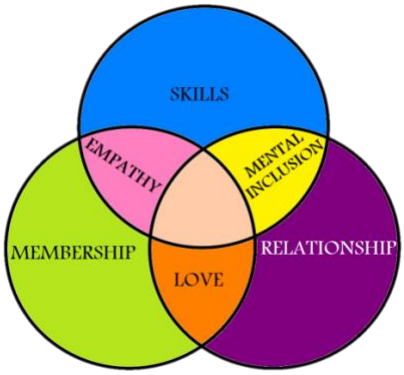
Augmented with Effective Strategies for Inclusive Education

Augmented teachers promote inclusive education in their classrooms, and they have the ability to understand their learners from different cultures and engage with them effectively. Inclusion is something that should happen in the mind of a teacher when they have good instruction that leads to a good outcome. They have a good instructional strategy for a good inclusive education. They understand that inclusion is not a set of strategies, inclusion is not a

placement issue, but inclusion is about belonging to a neighborhood, a school, a community or a group of friends. Figure 11 illustrates the overlapping of attributes that influence inclusion.

Figure 11

Attributes of Inclusion



They enable their students to feel a membership in their classrooms which is a major outcome of inclusive instruction, where the learner feels physical, mental, and emotional accommodation in the classroom and participates in all the instructional strategies and activities in a meaningful way. They create relationships among the learners who mingle with their peers and teachers on a one-to-one basis in the classroom. They receive help and give help to other peers in the classroom. Augmented teachers validate the experiences and feelings of people, not their color and caste. They avoid jokes or statements related to community, caste, and color and they avoid microaggressions in the classrooms. Teachers are trained in a variety of non-academic topics such as dealing with challenging students, suicide prevention, food allergies, and sexual assault.

Conclusion

Augmented educators are life-long learners. They want their students to be lifelong learners, and they also keep up with the latest developments in education. They are

knowledgeable about media, technology, and information literacy. Educators must enhance their computer literacy and improve their proficiency in using technology for academic purposes. They should equip themselves with the updated technology. Gen Z'ers prefer interactive learning platforms and they are involved directly in hands-on training in their learning process. The instructors need to improve their teaching styles to connect better with their learners. They should use learning management systems (LMS) like Google Classroom, Google Meet, Google Sites, Microsoft Team, Blackboard, Powerpoint presentations, podcasts and videos in their regular classroom teaching. They can effectively use Twitter and Whatsapp to connect with their colleagues and learners to share ideas and have discussions. Online quizzes, digital storytelling, padlet, and Kahoot are some of the applications for engaging students effectively. There are a number of teaching tools, such as drawing tools, video making tools, assessment tools, and simulation tools available online and educators should select suitable tools for their teaching learning process to meet the needs of Generation Z learners.

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Examining Teachers' Participation in Professional Development in Terms of Their Demographic Characteristics

Mehmet Eroğlu and Ramazan Özbek

Abstract

The study aims to examine teachers' participation in professional development (PD) in terms of gender, marital status, seniority, and content area. The causal-comparative model was used in the study. The sample of the study consists of 542 content area teachers working in K-12 schools in Turkey. Personal information form and a professional development activities scale developed by Kwakman (1999), updated by Dijkstra (2009), and adapted to Turkish by Eroğlu and Özbek (2020) was used to collect the data. Descriptive statistics, t-test, and Anova were used to analyze the data. Results of the study indicated that teachers' participation in PD activities and especially collaboration activities is lower. Teachers' participation in PD activities differ significantly in terms of their gender, marital status, seniority and branches. It is thought that the low participation of teachers in PD activities is due to the limited effective professional development opportunities and the lack of support for PD in Turkey.

Keywords: Teacher professional development, teacher characteristics, teacher demographics, Turkey

Mehmet Eroğlu, Ph.D., Firat University, Faculty of Education can be reached mehmeteroglu@firat.edu.tr

Ramazan Özbek, Ph.D. is an Associate Professor of Education at Inonu University. He can be reached at ramazan.ozbek@inonu.edu.tr

Education is a phenomenon that has been important in every period of human history and shapes societies. However, it was very difficult for people to access education in the past. However, with the industrial revolution, schooling has increased and people have been provided with access to education. In today's world of rapid technological developments and changes, debates about the quality of education are coming to the forefront because only qualified and effective education can meet the needs of individuals of the 21st century. In this context, many research studies are carried out and policies are developed on what makes education effective and qualified. Studies indicate that the most important variable that makes education qualified and effective is teacher quality (Ambussaidi, & Yang, 2019; Bakar, 2018; Blömeke, et al., 2016; Gershenson, 2016). Effective teachers are professionals who are responsible for the achievement of students, have effective classroom management skills, organize and implement teaching effectively, monitor student development, and have high-level thinking skills (Stronge, 2018). In order for teachers to be effective, they need to have these skills and develop these skills. Professional development (PD) is the most important variable that enables teachers to develop these skills (Hamdan & Lai, 2015). An important component of successful teaching is learning (Polk, 2006). For this reason, it is important for teachers to learn professionally in order to make teaching effective. Teachers can be more effective teachers by improving their professional knowledge and skills through PD (Jacob, et al., 2017; Lu et al., 2019;). With the rapidly changing social, cultural, and political dynamics, PD has become mandatory for teachers to perform better (Krecic & Grmek, 2008). For this reason, the PD of teachers recently become an important issue (Bellibaş & Gümüş, 2016; Eroğlu & Özbek, 2020; Sandholtz & Ringstaff, 2013).

Professional Development

The teaching profession requires teachers to constantly update their professional knowledge and skills (Baştürk, 2012; Chang et al., 2011; Uştu et al., 2016) because teachers have responsibilities such as teaching, knowing the student, classroom management, management of student behavior, knowing different teaching strategies, and having knowledge of their subject matter (Goh & Wong, 2014). It is possible for teachers to fulfill these responsibilities well with PD. Professional development generally refers to the development of a person's professional role in a profession (Abou-Assali, 2014; Villegas-Reimers, 2003). It is defined as a lifelong process that develops professional knowledge and skills depending on the information demand of a person performing a profession (Hoque, et al., 2011). PD is a process that emphasizes the activities teachers participate in throughout their professional life to improve their professional skills (Craft, 2002; Day & Sach 2005; Wells, 2014).

Professional development is the processes and activities that aim to enable students to learn better by improving teachers' professional knowledge, skills, and attitudes (Guskey, 2000; Reese, 2010). PD increases the achievement of students by improving teachers' content knowledge and teaching techniques (Garet et al., 2001; Hoque, et al., 2011; Jacob, et al., 2017). Therefore, professional development enables teachers to become effective teachers by improving their professional knowledge, skills, and practices. Because student achievement is an important indicator of teachers' effectiveness (Kane, et al., 2013). PD is a process that enhances teachers' qualifications and contributes to students' better learning and achievement (Blank & De Las Alas, 2009; Garet et al., 2001; Isabel, 2010). Therefore, the ultimate goal of PD is to increase student achievement by improving teachers' professional knowledge and skills (Day & Sach, 2005; Guskey, 2000; Reese, 2010). Therefore, PD forms the basis of educational reforms,

practices, and policies aiming to increase the quality of education (Sandholtz & Ringstaff, 2013; Seferoğlu, 2001; Smith & Desimone, 2003).

Professional development of teachers is the process in which they develop their professional knowledge, skills, and practices through various activities (Chang et al., 2011; Craft, 2002;). Also, PD is defined as a systematic process that includes planned learning opportunities, experiences, and activities to ensure the PD of teachers (Guskey, 2000; Wells, 2014). Therefore, the most important component in ensuring PD is professional development activities (İlğan, 2013; Kwakman, 2003). There are differences in the classification of professional development activities in the literature. Lieberman (1995) classified learning activities related to PD as direct learning, learning at school, and learning out of school. Craft (2002) and Scales et al. (2011) also have similar professional development activities classification. These classifications include activities such as personal development opportunities, courses, workshops, updating, experience, reflection, collaboration, self-assessment, academic reading, action research. In some studies, professional development activities are classified as activities for updating knowledge and skills, reflective activities, collaboration activities with colleagues, sharing activities, and experiencing activities (De Vries et al., 2013a, 2013b; Kwakman, 1999, 2003; Timperley, et al., 2007). Although different professional development activities are defined in the literature, focus on content knowledge, collaboration, active learning, coherence, are the basic features of effective PD that increase students' achievement (Garet et al., 2001). Traditional professional development activities such as courses, seminars, and workshops are not effective in increasing the achievement of students (Bümen et al., 2012; Garet et al., 2001).

Teachers' Participation in Professional Development in Turkey

The quality of teachers in Turkey, as well as in many countries, is often a topic (Bellibaş & Gümüş, 2016; ; Eroğlu, 2019; Seferoğlu, 2004). PD of teachers in Turkey is provided mainly through in-service training (Bayrakçı, 2009; Bümen, et al., 2012; Sıcak & Parmaksız, 2016; Terzi, 2014). The Ministry of Education, working in state schools in Turkey, is obliged to provide in-service training of all teachers (Baştürk, 2012; Bayrakçı, 2009; Elçiçek & Yaşar, 2016). These activities do not provide effective PD (Akdemir, 2012; Bayrakçı, 2009; Bellibaş & Gümüş, 2016; Bümen et al., 2012; Sıcak & Parmaksız, 2016) because in-service training activities are conducted in the form of didactic and listening presentations that are disconnected from the context (Bayrakçı, 2009; Bümen et al., 2012). There are also problems such as planning, quality of experts, lack of materials, and lack of teacher motivation (Bayrakçı, 2009; Bümen et al., 2012; İzci & Eroğlu, 2016; Özen, 2006; Uysal, 2012). PD opportunities offered to teachers other than in-service training are limited and teachers' PD is not sufficiently supported by MoNE and Organizations (Bellibaş & Gümüş, 2016; Bümen et al., 2012; Eroğlu & Özbek 2020).

PD of teachers in Turkey depends on their own efforts due to the inadequacy and insufficiency of in-service training, insufficient PD opportunities, and insufficient support of PD by the MoNE and organizations (Bümen et al., 2012; İlğan, 2013). However, in recent years new practices such as school-based PD (Kaya & Kartallıoğlu, 2010), academic career levels and promotion (Gürcüoğlu & Özdemir, 2020) have been developed and as well as policies for the professional development of teachers in Turkey. PD is one of the areas highlighted in the 2023 education vision document that will give direction to education in Turkey. The results of this study revealed the effect of demographic characteristics of teachers on their participation in PD.

Determining the PD characteristics of teachers is important for resolving problems and developing policies related to professional development. Also, this study hopes to contribute to the literature on the development and individualization of PD programs.

Aim of The Study

The aim of the study is to examine Turkish teachers' participation in PD in terms of demographic variables (gender, marital status, seniority, and content area). In order to achieve these goals, the following questions were developed:

1. What is the level of teachers' participation in PD?
2. Does the participation of teachers in PD differ in terms of their gender?
3. Does the participation of teachers in PD differ in terms of their marital status?
4. Does the participation of teachers in PD differ in terms of their professional seniority?
5. Does the participation of teachers in PD differ in terms of their branches?

Method

The causal-comparative model was used in this study. Causal comparison is a research model that examines the causes and effects of a previously realized or existing event as it exists without intervention in its own conditions (Fraenkel, et al., 2011; Sözbilir, 2014).

Sample

Since causal comparison studies are conducted with a quantitative approach, the results obtained are desired to be generalizable. For this reason, it is necessary to select a large sample using random methods whenever possible among individuals in which variables can be observed and measured (Büyüköztürk et al., 2014; Tekbıyık, 2014). The sample of the study consists of 542 content teachers working in MEB schools in Elazig in Turkey.

In the selection of teachers participating in the study, it was tried to represent different demographic characteristics in the sample. Fifty-one percent of the teachers participating in the research were male and 49% were female. Fifty-one percent of the teachers work in secondary school and 49% work in high schools. Twenty percent of teachers have seniority of 1-5 years, 19% for 6-10 years, 19% for 11-15 years, 20% for 16-20 years, and 22% for 20 years. Eighty-three percent of the teachers hold an undergraduate degree, and 17% hold a graduate degree. According to the undergraduate faculties from their institutions, 49% of the teachers were graduated from the Faculty of Education, 37% from the Faculty of Arts and Sciences, and 14% from other faculties. While 81% of their teachers are married, 19% are single. The content areas of the teachers are 18% Turkish, 15% mathematics, 14% science, 14% social sciences, 13% English, 6% sports-arts, 5% religious culture and knowledge of ethics, 4% information technologies, and 3% guidance and counseling.

Data Collection Tools

Personal information form and a professional development activities scale developed by Kwakman (1999), updated by Dijkstra (2009), and adapted to Turkish by Eroğlu and Özbek (2020) were used to collect the data of the study. The personal information form includes questions about the participants' gender, professional seniority, content area, and marital status. Professional development activities scale adapted to Turkish by Eroğlu and Özbek (2020) consists of four factors (collaboration activities, update activities, sharing activities, and reflection activities) and 22 items that explain 59.4 % of the variance. Cronbach Alpha internal consistency coefficients is calculated as .88 for collaboration activities, .84 for update activities, .88 for sharing activities, .70 for reflective activities, and .92 for entire of the scale in adaptation

results. The four-point Likert type scale is a valid and reliable measurement tool that measures teachers' participation in PD.

Data Collection and Ethical Issues

Before collecting data, an ethical compliance report for research from İnönü University Scientific Research Commission and research permission from Ministry of National Education (MoNE) were obtained. Research data were collected by the researchers. Participants were informed about the research and a voluntary informed consent form was given to the participants with the measurement tools. 568 data were collected from 80 schools in Elazig in Turkey.

Data Analysis

The fact that the statistical tests used in quantitative research are parametric tests is desirable in terms of the reliability and generalizability of the research results (Can, 2014). Therefore, it was planned to use parametric tests in this study in terms of the reliability and generalizability of the research. However, in order for parametric tests to be used, the data should be at least in the range scale, show normal distribution, and assumptions of equal group variances should be ensured (Can, 2014). In order to provide these assumptions, the data were reviewed and descriptive statistics were made to determine whether the items' skewness and kurtosis values were in the "∓1.50" range (Çokluk et al., 2010), and whether z scores were in the range of "∓3.28" (Field, 2013). Data were primarily analyzed in terms of loss and extreme values. Then, the skewness and kurtosis values of the items were calculated. In addition, the distribution of the data was tried to be examined visually through histograms and P-P graphics. Twenty-six data were excluded from the analysis by controlling the control item, extremes, and other descriptors. As a result of the descriptive analysis, further analysis was made with the remaining 542 data. In the analysis of the research data, in addition to descriptive statistics such

as arithmetic mean, standard deviation, minimum and maximum score, independent sample t-test, and one-way Anova analysis effect size etasquare ($\eta 2$) analysis were performed.

Results

This section includes the findings obtained from the analysis in the order of the sub-problems.

Level of Participation of Teachers in Professional Development Activities

Mean and standard deviation were calculated to determine the level of teachers' participation in professional development activities. The analysis results regarding the participation level of teachers in professional development activities are shown in Table 1.

Table 1

Teachers' Level of Participation in Professional Development Zctivities

Factors	M	Sd	Min	Max
Update Activities	3.00	.50	1.00	4.00
Reflection Activities	3.30	.47	1.00	4.00
Sharing Activities	3.23	.51	1.00	4.00
Collaboration Activities	2.91	.64	1.00	4.00
Total	3.08	.42	1.00	4.00

M=mean, Sd=Standard deviation, Min= Minimum, Max= Maximum

As seen in Table 2, the mean of reflective activities, which are the professional development activities that teachers participate in most frequently, is M = 3.30 standard deviation Sd = .27. While the mean of sharing activities is M = 3.23, the standard deviation is Sd = .51, the mean of the update activities is M = 3.00 standard deviation Sd = .50. The mean of collaboration activities, which is the least professional development activity that teachers participated in, is M = 2.91, and their standard deviation is Sd = .64. The mean of participation of teachers in the total of professional development activities is M = 3.08, and their standard

deviation is Sd = .42. The low mean shows that the level of participation of teachers in professional development is not very high. In addition, low participation in cooperation activities can be considered as a striking finding.

Differentiation of Participation in Professional Development Activities In Terms Of Gender

Independent samples t-test results to determine whether teachers' participation in professional development activities differ in terms of their gender are shown in Table 2.

Table 2

t-test Results on the Differentiation of Participation in Professional Development in Terms of Gender

PD activities	Gender	N	M	Sd	t	p	Effect size (*η2*)
Update Activities	Male	276	3.03	.51	1,141	,252	
	Female	266	2.98	.48			
Reflection Activities	Male	276	3.25	.47	-2.442	.015*	.011
	Female	266	3.35	.47			
Collaboration Activities	Male	276	2.91	.64	-,121	,904	
	Female	266	2.92	.64			
Sharing Activities	Male	276	3.20	.49	-1,186	,236	
	Female	266	3.25	.53			
Total	Male	276	3.08	.44	-,440	,660	
	Female	266	3.09	.41			

N: sample size, M= mean, Sd= standard deviation, t= size of difference, etasqure(*η2)= effect size, * p < .05,*

A significant difference was found in favor of female teachers in the factor of participation in reflective activities only [t (540) = -2.442, p <.05] in terms of gender variable in teachers' participation in professional development activities. While the mean of female teachers' participation in reflective activities was M = 3.35, the mean of male teachers was M = 3.25. The findings show that female teachers participate in reflective activities more than male teachers. The effect size of the difference was calculated as *η2* = 0.11. The .01 value of the etasquare (*η2*)

used in the independent samples t test was interpreted as small, .06 as medium and .14 as large effect size (Salkind & Green , 2010). Therefore, the effect size of the difference is small.

Differentiation of Participation in Professional Development Activities in Terms of Marital Status

Independent samples t-test results to determine whether teachers' participation in professional development activities differ in terms of their marital status are shown in Table 3.

Table 3

t-test results on the Differentiation of Participation in Professional Development in Terms of Marital Status

	Gender	**N**	**M**	**Sd**	**t**	**p**	**Effect size (*η2*)**
Update Activities	Married	438	2.98	.50	-2,464	,014*	.011
	Single	104	3.11	.49			
Reflection Activities	Married	438	2.91	.63	-.455	.649	
	Single	104	2.94	.66			
Collaboration Activities	Married	438	3.22	.51	-,191	,848	
	Single	104	3.24	.54			
Sharing Activities	Married	438	3.28	.47	-1,947	,052	
	Single	104	3.38	.48			
Total	Married	438	3.07	.42	-1,555	,121	
	Single	104	3.14	.42			

N: sample size, M= mean, Sd= standard deviation, t= size of difference, etasqure(*η2)= effect size, * p < .05,*

A significant difference was found in favor of single teachers in the factor of participation in only update activities [$t_{(540)} = -2.464$, $p < .05$] in terms of a marital status variable in teachers' participation in professional development activities. While the mean of single teachers' participation in reflective activities was M = 3.11, the mean of male teachers was M = 2.98. The findings show that single teachers participate in update activities more than married teachers.

The effect size of the difference was calculated as $\eta 2$ = 0.11. Therefore, the effect size of the difference is small.

Differentiation of Participation in Professional Development Activities In Terms Of Seniority

One-way Anova test results to determine whether teachers' participation in professional development activities differ in terms of their seniority are shown in Table 4.

Table 4

Anova Test Results on the Differentiation of Participation in Professional Development in Terms of Seniority

Factors		Sum of squares	Df	Mean of squares	F	p	Difference[a]	Effect size ($\eta 2$)
Update Activities	Between groups	1,012	4	,253	1,023	,395		
	Within groups	132,756	537	,247				
	Total	133,768	541					
Reflection Activities	Between groups	2,061	4	,515	2,341	,054		
	Within groups	118,164	537	,220				
	Total	120,225	541					
Collaboration Activities	Between groups	3,355		,839	2,086	,081		
	Within groups	215,909		,402				
	Total	219,264						
Sharing Activities	Between groups	2,585	4	,646	2,478	,043*	1-5 > 6-10	.018
	Within groups	140,057	537	,261				
	Total	142,643	541					
Total	Between groups	1,143	4	,286	1,608	,171		
	Within groups	95,457	537	,178				
	Total	96,601	541					

Df= degree of freedom, F= Friedman test, etasqure($\eta 2$)= *effect size, * p < .05.*

According to the one-way Anova test result, only participation in sharing activities significantly [F (3, 539) = 2.478, p <.05] differed in terms of the professional seniority of teachers. In order to determine among which groups the difference existed, the Dunnett C test was used because the variances were not evenly distributed. According to Dunnett C test results,

the mean of teachers with 1-5 years of professional seniority participating in sharing activities was M = 3.33, while the mean of teachers with professional seniority of 6-10 years was M = 3.12. This finding showed that teachers with the lowest professional seniority participated in sharing activities more frequently than higher seniority groups. The effect size of the difference was calculated as $\eta 2$ = 0.18. The .01 value of the etasquare ($\eta 2$) used in the Anova test is interpreted as small, .06 as medium and .14 as large effect size (Salkind & Green , 2010). Therefore, the effect size of the difference is small.

Differentiation of Participation in Professional Development Activities In Terms Of Content Area

One-way Anova test results to determine whether teachers' participation in professional development activities differ in terms of their content area are shown in Table 5.

Table 5

Anova Test results on the Differentiation of Participation in Professional Development in Terms of Branch

Factors		Sum of squares	Df	Mean of squares	F	p	Difference[a]	Effect size ($\eta 2$)
Update Activities	Between groups	,866	9	,096				
	Within groups	132,902	532	,250	,385	,942		
	Total	133,768	541					
Reflection Activities	Between groups	4,567	9	,507				
	Within groups	115,567	532	,217	2,334	,014*		.038
	Total	120,225	541					
Collaboration Activities	Between groups	9,673	9	1,075				.044
	Within groups	209,591	532	,394	2,728	,004*		
	Total	219,264	541					
Sharing Activities	Between groups	4,332	9	,481				
	Within groups	138,311	532	,260	1,851	,057		
	Total	142,643	541					
Total	Between groups	3,121	9	,347				.032
	Within groups	93,480	532	,176	1,973	,040*	-	
	Total	96,601	541					

Df= degree of freedom, F= Friedman test, etasqure($\eta 2$)= *effect size, * p < .05.*

According to the one-way Anova test results, teachers' participation in reflection activities [F (3, 539) = 2.334, p <.05], collaboration activities [F (3, 539) = 2.728, p <.05] and participation in general professional development activities [F (3, 539) = 1.973, p <.05] differ significantly according to the content area of teachers. According to the results of the Dunnett C test conducted to determine between which groups the difference was, it could not be determined between which groups there was a difference. However, when the mean of the groups was examined, the mean of the foreign language teachers who most frequently participated in the reflective activities was M = 3.41, while the mean of the least participating guidance teachers was M = 2.93. While the mean of foreign language teachers who attend the collaboration activities most frequently was M = 3.07, the mean of the least participating arts/sports teachers was M = 2.63. The mean of the foreign language teachers who attend most frequently in all professional development activities was M = 3.19, and the mean of the least participating guidance teachers was M = 2.89. The most striking result emerging from this finding shows that foreign language teachers' participation in PD is higher than other content teachers. The effect size of the differences was calculated as for reflective activities $\eta 2$ = 0.38, for collaboration activities $\eta 2$ = 0.44, for general activities $\eta 2$ = 0.32. The effect size of the differences is small.

Discussion and Suggestion

In this section, the relationship between teachers' participation in PD and their demographic characteristics will be discussed in the context of the results of the current research and the results of the literature.

The results of the study show that the participation of teachers in PD is low and that the professional development activities in which teachers participate least are collaboration activities. This is a striking and remarkable result in the PD of teachers in Turkey because it

shows that participation in PD is not at the desired level and collaboration, which literature reveals is very important for effective PD (Garet, 2001; Kwakman, 2003). This finding aligns with current other studies indicating that teachers' participation in professional development activities is low, quality of professional development activities is low and opportunities for PD are limited in Turkey (Bellibaş & Gümüş, 2016; Ceylan & Özdemir, 2016;). Not only do the results of the studies align with the current finding, but they also contain important clues regarding the cause of the finding. It is thought that the low participation of teachers in PD is due to the limited number of professional development activities and opportunities, and also the inadequacy of effective professional development activities. It is striking that participation in collaboration activities is low because collaboration activities also form the basis of effective PD (Garet, et al., 2001). Notably, professional development activities that teachers most attended in Turkey are courses, seminars, workshops, conferences, etc (Akçay-Kızılkaya, 2012; Bümen et al., 2012; Ceylan & Özdemir, 2016; OECD, 2011;). These are also traditional professional development activities and not collaborative (Bayrakçı, 2009; Bümen et al., 2012). In fact, this shows why current professional development activities are also a quality problem. In this context, the results of the studies of Bayrakçı (2009), Altun and Cengiz (2012) also confirm the findings of the study and possible causes. These studies indicated that PD has structural problems, PD opportunities are inadequate and unqualified, collaborative PD is insufficient, and PD is not supported in Turkey.

The results of this study indicated that the participation of female teachers in reflective activities is higher than that of male teachers. However, participation in other professional development activities do not differ significantly in terms of gender. In the study of Çelen et al. (2016), no significant difference was found in teachers' participation in PD in terms of gender.

Reflective activities are mostly individually based activities. In addition, reflective activities require reflective thinking skills and self-evaluation (Kwakman, 2003). More studies are needed to determine the reason for the significant difference in favor of female teachers. In fact, the main reason for using the gender variable in the study is that it is thought that gender roles may have an effect on participation in PD since PD is a job that requires cost and especially time (Garet et al., 2001, Guskey, 2003). In Turkish society, women have more responsibilities at home besides their profession. This can hinder the PD of female teachers in Turkey. Notably, in the study of Badri et al. (2016), it was determined that there are more factors that prevent female teachers from participating in professional development. Although it is difficult to say that gender is a determining factor in the PD of teachers, this may differ according to the characteristics of the sample and professional development opportunities.

The results of this study show that the participation of single teachers in updating activities is higher than married teachers. As emphasized in the results regarding the gender variable, it is thought that marital status may be a factor in participation in PD, as PD requires cost and time (Garet et al., 2001; Guskey, 2003). In this context, it is thought that the responsibilities arising from the marital status may affect the time and cost that teachers devote to PD. Notably, the higher participation of single teachers in updating activities than married teachers may be associated with this situation. However, this result should be supported by other studies and qualitative studies.

The results of this study indicate that the teachers with the lowest professional seniority participated in sharing activities more frequently than all other groups. There are many studies in the literature that emphasize the relationship between PD participation and professional seniority. In the study of Mahmoudi and Özkan (2015), it was determined that both new and experienced

teachers frequently do sharing activities. Gümüş (2013) also found in his study that as the professional seniority of teachers increases, their participation in PD decreases. In the study of Richter et al. (2011), it was determined that as the age and seniority of teachers increase, they do academic reading activities more frequently, and formal learning activities are the most frequent in all seniorities. The results obtained from these studies indicated that the activities teachers participate in according to their professional seniority differ in terms of the context. Inexperienced teachers need more PD (TEDMEM, 2016) because they have little professional experience. Therefore, they try to increase their experience through professional development activities (Craft, 2002). When the findings obtained from this study are evaluated in this context, it is possible that teachers with low seniority share teaching materials, lesson plans, and measurement tools in order to benefit from the experiences of experienced teachers in their practices because the relationships between teachers' learning goals and professional seniority may differ in their career steps (Louws, et al., 2017). In this context, sharing activities can make important contributions to the PD of young teachers who are in the first steps of the profession. This result is related to the nature of professional development because inexperienced teachers need PD more and they can meet these needs by sharing professional experiences with other colleagues. Therefore, the first years of the teaching profession can be considered as a critical period in the context of PD. Therefore, inexperienced teachers need mentors to ensure their PD. The mentoring approach has also been partially implemented in recent years.

According to the results of the study, it was determined that foreign language teachers were the most frequent participants in reflective activities, collaboration activities, and general professional development activities. Guidance and counseling teachers were the least involved in collaboration activities and general professional development activities. Arts/sports teachers

were the least involved in collaboration activities. There are many professional development activities that will contribute to teachers being better teachers and meet the different needs of teachers (Guskey, 2002). Of course, effective content area PD primarily focuses on the subject matter (Garet et al., 2001). In this context, the PD needs of teachers in various content areas may be different. In addition, opportunities and PD opportunities offered may be effective in the emergence of this finding. The more intense participation of foreign language teachers in PD may be related to higher PD opportunities. Similarly, the less participation of arts/sports teachers in PD may be related to factors such as the low number of PD opportunities offered and their cost. However, this finding may be due to teachers' personal characteristics, abilities, attitudes, etc.

Limitations and Further Research

Data in this study were collected from teachers working in public schools in Turkey. Also, the effect sizes of the difference calculated are small. Therefore, further research should be conducted with larger and more diverse samples. Studies in different cultures should be conducted to further examine the effect of gender and marital status on teachers' participation in PD. Finally, there is a need for studies that will reveal the professional development needs and profiles of teachers in different professional seniority and branches.

Conclusion

The results of this study show that teachers' participation in PD and also the availability of effective PD is low in Turkey. This is thought to be due to the lack of sufficient effective PD opportunities other than traditional professional development activities for which the participation of teachers is mandatory. Teachers' participation in PD differs in terms of their content areas. It is thought that the high participation of foreign language teachers in PD is due to

the availability of opportunities and resources. Teachers' participation in PD also differs in terms of their seniority. As professional seniority increases, participation in PD decreases. Since PD requires time and cost, groups with advantages in terms of time and cost can participate more in PD. Many studies confirm that similar problems regarding the quantity and quality of PD exist in other countries. These results indicate that teachers should be provided with effective PD opportunities according to their content area and seniority. PD approaches such as coaching and mentoring should be implemented to ensure the PD of inexperienced teachers. Also, opportunities such as providing time and financial support for the PD of teachers can be helpful. In order for teachers to participate in professional development activities, it is necessary to provide effective professional development opportunities, to provide time, to support them financially, and to individualize professional development programs.

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The Effectiveness of the Brain-Based Learning Style Cycle

Şeyma Şahin, Burcu Ökmen, and Abdurrahman Kılıç

Abstract

The purpose of this research was to evaluate the effectiveness of the brain-based learning style cycle. In the research, a pre-test and post-test quasi-experimental design without a control group was used. The research study group consisted of sophomore (2nd year) students studying at Duzce University Faculty of Education, Psychological Counseling and Guidance Department in the fall semester of the 2020–2021 academic year. There were a total of 111 students, 84 females and 27 males. The course was structured according to the Brain-Based Learning Style Cycle. Research data were collected using the "Attitude Scale Towards Cooperative Learning", the "Teacher Self-Efficacy Scale", the "Metacognition Thinking Skill Scale" and the "Student Letters". At the end of the research, it was concluded that the students had positive attitudes towards the model. It was determined that the model created a significant difference in students' attitudes towards cooperative learning, teacher self-efficacy beliefs, and metacognitive thinking skills.

Keywords: Brain-based learning style cycle, metacognition, teacher self-efficacy

Dr. Şeyma Şahin, Teacher, Republic of Turkey Ministry of National Education, Duzce, Turkey can be reached at seyymasahin@gmail.com

Dr. Burcu Ökmen, Teacher, Republic of Turkey Ministry of National Education, Duzce, Turkey, can be reached at burcuokmen91@hotmail.com

Prof. Dr. Abdurrahman Kılıç, Educational Sciences, Duzce University, Duzce, Turkey, can be reached at abdurrahmankilic@duzce.edu.tr

Over time, educators have realized the problems experienced in meeting the needs of different students in heterogeneous and crowded classrooms and the need for alternative teaching approaches (Friedman & Alley, 2010). There has been a shift towards a more "personalized" approach to learning and teaching, and the idea that learning should be tailored to individual needs has emerged (Allcock & Hulme, 2010). As a result of this, the "learning styles" view, which is thought to contribute significantly to academic success and learning products in education today, has come to the forefront, and this view has created a great influence in education at varying levels from kindergarten to graduate school (Cassidy, 2004). The learning style view has been widely used in psychology and pedagogy since the 1930s (Boneva & Mihova, 2012).

It is thought that the learning of the individual is affected by their learning styles, and understanding the learning styles and preferences of the students will provide benefits both to the students and the instructors. It is believed that the individual's knowledge of their own learning style will enable them to manage their learning by using appropriate learning strategies (Awla, 2014; Jaleel & Thomas, 2019). It is also believed that optimal learning requires diagnosing individuals' learning styles and planning teaching accordingly, and that understanding students' learning styles will help teachers plan effective learning environments (Allcock & Hulme, 2010; Pashler, McDaniel, Rohrer & Bjork, 2009). It is also stated that learning environments that are not arranged in accordance with learning styles can cause problems such as absenteeism and dropout (Awla, 2014).

However, there are also some opinions that the validity and reliability of the tools used in determining the learning style are low, and using arbitrary criteria such as median and mean, it is not possible to "cluster" students into different groups. Additionally, some other opinions are that

student self-assessments are not sufficient to evaluate learning styles and that the learning path preferred by individuals will often not be the most effective learning path and will not yield effective results (Dembo & Howard, 2007; Kirschner, 2017). It is also thought that grouping students according to different learning styles and creating teaching activities for each learning style will be difficult and costly, require extra teacher training, and may increase the number of teachers (Pashler et al., 2009).

Unlike these two extreme viewpoints, there are some who believe that environments with a balanced and inclusive approach, covering different learning styles, using cooperative and active learning strategies with different materials and activities, and providing students with multiple experiences will provide effective learning. It is thought that using various teaching styles together in an effective learning environment are an effective way to both reach more students and expand their learning repertoire/styles. It is also thought that to maximize the effectiveness and quality of learning in the planning, implementation, and evaluation processes, it is important to focus on a combination of learning styles, enriching learning by using different ways in the learning process (Darra, 2013; De Vita, 2001; Peacock, 2001; Romanelli, Bird & Ryan, 2009). This view is adopted within the scope of this study. It is thought that rather than identifying the learning styles of students, placing them in a uniform learning style, and narrowing their learning, it is a more beneficial approach to support their versatile development by touching on the different styles they have, and to make their learning skills more comprehensive by revealing their different potential areas.

While the amount of research describing the benefits of learning styles has increased in recent years, ironically, the role of learning styles in practice has decreased in the international community. Unfortunately, in schools all over the world, understanding of learning styles is not

included in education and a uniform approach is adopted (Evans, Cools & Charlesworth, 2010; Wilson, 2012). Academicians in higher education are generally unfamiliar with learning styles approaches; they try to appeal to all students with a single teaching approach. They prefer to stay in their comfort zone and avoid using methods and techniques that utilize different learning styles in learning environments (Hawk & Shah, 2007). In addition to this deficiency in the field, it is seen that the studies on the transfer of learning styles into practice in the international literature are quite limited. Some reasons for this gap in practice are the lack of consensus-based theories, confusing terminology, and the fact that most learning styles are not sufficiently related to practice; therefore, there are uncertainties about how to transfer theory to practice (Allcock & Hulme, 2010; Dembo & Howard, 2007). Similarly, when the literature on learning styles in Turkey is examined, it is seen that there are many survey studies in which students' learning styles are determined, but there are a limited number of studies and examples that will guide the effective implementation of learning styles.

Due to the unavoidable distance education process that the world and our country are faced with, course designs suitable for different learning styles have gained even more importance. In online courses, in order to maximize the learning potential of each student, to create positive effects on student participation and student attitudes, and to ensure effective learning, it is very important to consider different learning styles in the planning of the course and to employ the appropriate methods, techniques, and materials (Battalio, 2009; Speece, 2012; Zapalska & Brozik, 2006). However, even in face-to-face education, there are uncertainties about how to transfer theory to practice. It is clear that how to adapt learning styles to learning in distance education is even more uncertain, and there is no study in the literature on this subject yet.

With this research study, it was aimed to present a learning style model suitable for the distance education process in order to contribute to the role of learning styles in practice and to enrich practice-oriented studies. For this purpose, the "Brain-Based Learning Style Cycle," which has been successfully adapted to distance education, covers different learning styles with a balanced and inclusive approach, supports cooperative and active learning, offers students multiple experiences with different materials and activities, and is based on the learning styles models in the literature, was developed. It is thought that this model will guide applications in all fields, especially those in higher education, and contribute to increasing the quality of education. Among the courses taken by pre-service teachers at universities, the "Teaching Principles and Methods" course can be considered the most comprehensive and important course in terms of gaining teacher competencies. It is very critical for students to acquire the skills and knowledge in this course effectively in terms of their future professional lives. In this context, the application and evaluation of this newly developed model in the "Instructional Principles and Methods" course, which is compulsory at the undergraduate level, was considered. The aim of this research is to evaluate the effectiveness of the brain-based learning style cycle. For this purpose, answers to the following questions were sought:

- What are the student attitudes towards the brain-based learning style cycle?
- What is the effect of the brain-based learning style cycle on students' attitudes towards cooperative learning?
- What is the effect of the brain-based learning style cycle on students' teaching self-efficacy beliefs?
- What is the effect of the brain-based learning style cycle on students' metacognitive thinking skills?

The Learning Style Concept and Its Models

The concept of "learning style" is a term used to express individual differences in learning processes. Kolb (1984) defined learning styles as "the methods individuals use to receive and process information." Grasha (1996) defined it as "the roles of different students during their interaction with classmates, teachers, and course content." Pashler et al. (2009) defined it as "what kind of information presentation individuals prefer and/or what kind of mental activities they find interesting," and Allcock and Hulme (2010) defined it as "adapting teaching and learning." Various researchers have independently worked on different aspects of learning styles and presented various models and theories. Some of these are described below.

Dunn and Dunn (1974) say that learning according to the learning style model is affected by different stimuli. These stimuli are: (1) environmental, (2) emotional, (3) sociological, (4) physiological, and (5) psychological. The combinations and variations between these elements show that very few people learn in exactly the same way. According to this model, environmental stimuli such as sound, light, temperature, and room design affect learning. Elements such as motivation, patience, and responsibility are considered emotional stimuli. Some students prefer to learn on their own, some prefer to learn in groups, and some prefer to work with peers or interact with an adult. All these elements are called "social stimuli." While some students prefer visual pictures or maps while learning, others prefer listening to music, and still others prefer kinesthetic activities. Some students like to eat or drink while learning, while others don't. The time of day also plays an important role in student learning. All these are physiological factors that affect learning. Psychological stimuli include global and analytical learning. Global learners learn better when they focus on the general topic. Analytical learners need to learn all parts of information by putting together small pieces to understand the whole

picture. Also, analytical learners have left-brain superiority while global learners have right-brain superiority.

In the experiential learning model developed by Kolb (1984), learning is perceived as a process. Learning is seen as the process of constructing knowledge and the transfer of pre-existing fixed ideas to the student is opposed. Students are actively involved in the learning process to improve learning. In the learning process, different thinking and problem-solving methods are encouraged. This process includes feedback on the effectiveness of learning efforts. In this model, the learning of individuals consists of four stages in the form of a cycle. These are "concrete experience," "reflective observation," "abstract conceptualization," and "active experience." Four learning styles emerged from the combination of these learning steps in the cycle as "changer," "assimilator," "differentiator," and "placer."

The 4MAT model (McCarthy, Germain, Lippitt, 2002) is a learning cycle developed by Bernice McCarthy in 1980. McCarthy created a pedagogical model based on John Dewey, David Kolb, and Carl Jung's brain research and other works. The model, which is a combination of David Kolb's Experiential Learning Model and Jung's Individuation Theory, is a synthesis of findings about learning styles and right-left brain dominance. According to the model, individuals learn in different but identifiable ways. Learning and transfer are more appropriately encouraged when classroom activities involve personal experience, reflection, association, conceptualization, application, extension, recognition, and integration into learning by systematically using the right and left hemispheres of the brain.

According to the 4MAT model, there are four types of learners. These are imaginative, analytical, common sense and dynamic learners. Imaginative learners seek meaning. They learn by listening and sharing ideas. Analytical learners seek facts and are interested in ideas and

concepts. They want to know what the experts think. Common sense learners seek usability; they want to know how things work. They enjoy hands-on experience and learn by testing theory through practice. Dynamic learners love to explore, learn by trial and error, and enrich reality and diversity.

The model consists of four quadrant steps addressing four different styles, and each quadrant consists of two parts that address the right-left hemisphere features of the brain. Thus, in the first step (connecting) of the model, which consists of eight steps in total, the student is engaged in a concrete experience. Students are provided with an opportunity to establish a relationship between their own lives and the subject area. In the second step (attending), students analyze the experience presented to them and expand their thinking areas by associating it with their own experiences. In the third step (image), which aims to expand meanings, students are encouraged to symbolize their understanding. At the center of this step is creating an image, visualizing it, and picturing the concepts in the mind. The fourth step (inform) is aimed at presenting the knowledge and experience to the students in a complete and systematic way. In step five (practice), students are directed to apply the concepts they have learned, while in step six (extend), students are encouraged to develop their own practice to test the limits and contradictions of their understanding. The seventh step (refine) requires students to critically re-examine newly acquired knowledge and experience. In this phase, students confront and resolve the contradictions in the previous phases. The eighth step (perform) is integration, celebration, and closing. It is the step in which presentations are made, poems are read, letters are mailed, and research reports are presented.

The Brain-Based Learning Style Cycle

The concept of "learning style" is a term used to express individual differences in learning processes. Kolb (1984) defined learning styles as "the methods individuals use to receive and process information." Grasha (1996) defined it as the roles of different students during their interaction with classmates, teachers, and course content. Pashler et al. (2009) defined it as what kind of information presentation individuals prefer and/or what kind of mental activities they find interesting, and Allcock and Hulme (2010) defined it as adapting teaching and learning. Various researchers have independently worked on different aspects of learning styles and presented various models and theories. Some of these are described below.

- A full cycle of the model is completed in two stages. The five steps in Kolb's experiential learning model, which are "concrete experience," "reflective observation," "abstract conceptualization," and "active experimentation," and the six steps in the 4MAT teaching model, which are "connect," "attend," "image," "inform", "practice," "extend," "refine," and "perform," were gathered into six steps in this model. These steps are "creating experiences," "creating meaning," "conceptualization," "application," "analyzing," and "sharing." Thus, the model consisted of six steps under two stages.
- According to brain-based learning, the left and right hemispheres of the brain have different functions, but they work together. Students learn best when their tasks are challenging and the classroom environment is safe and supportive. Emotions are brain-based and play an important role in decision-making. The brain's (or mind's) search for meaning is personal, and the more the learning is related to personal experiences, the deeper the learning will be (Connell, 2009). Accordingly, the model was designed to appeal to both right-brain and left-brain characteristics. Each step of the model includes challenging and interesting tasks for

students. Students' feelings and personal experiences are combined with learning in the "creating experience" and "creating meaning" steps.

- Considering the "social stimuli" in the Dunn and Dunn model, and considering that some students prefer to learn by themselves, some prefer to learn in groups, and some others prefer to interact with an adult, the three steps in each stage were organized as "individual/pair", "group" and "class" work.
- In this way, students will be able to work both individually and in cooperation, and each student will be able to find a place for himself/herself in one of these steps. Cooperative learning has been attempted to allow students to provide social interaction among themselves, to feel responsible for their peers' success, to take more responsibility, put in more effort, and to be more motivated. The first two steps in each stage are performed by the students before the course, and the third step can be carried out face-to-face or online. With these steps, the model can be successfully adapted to distance education.
- Since it is thought that the quality of the learning outcomes obtained by the students is largely determined by the learning activities they participate in, a student-centered teaching/active learning approach has been adopted in the formation of the model. The model is designed in such a way that students are responsible for their own learning and actively participate in the meaning-making processes.
- The model includes the use of methods such as portfolios, self- and peer assessment, and so on in student assessment.

The model is schematized in Figure 1.

Figure 1

The Brain-Based Learning Style Cycle

As seen in Figure 1, the Brain-Based Learning Style Cycle is completed in two stages and six steps. The steps of the model are explained below.

Stage 1. Step 1: This step is the "creating experience" step. Students are expected to create and record personal experiences with the subject, either individually or in pairs, based on their preferences. The teacher's job is to guide them. In this step, which is organized in accordance with the "imaginary" learning style and appeals to the right brains of the students, literary writing techniques such as memoirs, tales, stories, diaries, and conversations are used.

Step 2: This step is the "creating meaning" step. Students are expected to think more deeply as a group about the experiences they create individually and to create meaning by discussing them. The teacher's job is to guide them. In this step, which appeals to the left brains of the students and is organized in accordance with the "imaginary" learning style, discussion techniques such as brainstorming, snowball, opposite panel, opinion development,

argumentation, thinking with six hats, six shoes, circle, speaking ring, Socratic questioning, debate, panel, forum, panel discussion, ball bearing, aquarium, butter-bread, and case study are used.

Step 3: This step is the "conceptualization" step. It is hoped that students integrate the experience and meaning they have created with more information and acquire theoretical knowledge about the concept. In this step, which is carried out with the whole class, the task of the teacher is to give information. This step appeals to both the right and left brains of the students and is organized in accordance with the "analytical" learning style. On one hand, in this step, film-documentary, poetry, drama, painting-cartoon, and music that appeal to the right brain are used. On the other hand, methods and techniques such as narration, question-answer, seminar, conference, symposium, and speech that appeal to the left brain are used.

Stage 2. Step 4: This step is the "implementation" step. In this step, which appeals to both the right and left brains of the students and is organized in accordance with the "common sense" learning style, the students are expected to perform the right and left brain-based activities individually or in pairs and produce products in line with the information they have learned in the first three steps. In this step, the teacher's duty is to guide them. Students are given right-brain tasks such as finding similarities and differences, classification, concept maps, fishbone, mind maps, structured grids, and puzzles, and left-brain tasks such as writing and completing stories, poster preparing, writing acrostics/poems, writing letters, writing dramas, and writing slogans.

Step 5: This step is the "analyze" step. In this step, students are expected to analyze and summarize all their learning in groups. Again, the teacher's job is to guide them. Analysis and

summarization techniques are used in this step, which appeals to the left brains of the students and is organized in accordance with the "dynamic" learning style.

Step 6: This step is the "sharing" step. In this step, which is attended by the whole class, appeals to the right brains of the students and is organized in accordance with the "dynamic" learning style, the students are expected to share the information they have analyzed and summarized with their friends using presentation techniques. In this step, the teacher's task is to evaluate and criticize them.

Method

Research Model

In this research, a pre-test post-test quasi-experimental method without a control group was used. The symbolic view of the pattern is given in Table 1.

Table 1

Pre-test Post-test Pattern without Control Group

	Pre-Test	**Process**	**Post Test**
D	O_1	X	O_2

D: Experiment Group, O1: Pre-Test, O2: Post-Test, X: Experiment Process

Study Group

The study group of the research was determined by the "purposive sampling" method. The Teaching Principles and Methods course and the students attending this course were selected as the study group on purpose. The study group consists of second year students studying at Düzce University Faculty of Education, Psychological Counseling and Guidance Department in the fall semester of the 2020-2021 academic year. Of the 111 students, 84 were and 27 were male.

Research Process

The course was structured according to the brain-based learning style cycle. The research lasted for 15 weeks. In the first week, an introduction was made and information about the course was given. The model was put into practice from the second week. The practice courses were held in three different student groups on the same day. The students formed groups of 3-6 people with their friends. There were seven, six, and nine groups among the first, second, and third-year students, respectively. A chairperson was chosen by the students to carry out group work. Each chairperson served for two weeks, and each group member became the chairperson in turn.

Each week, the students first carried out their individual/couple work, and then they carried out their group work at a time and method they determined before the classroom work. The classroom works were scheduled on the live course platform of the university as the first class between 13.00-14.00, the second class between 14.00-15.00 and the last class between 17.00-18.00 every Wednesday. Every Thursday, the students were sent instructions valid for two stages. The instructions were containing the achievements of the unit, the tasks/activities to be performed at each step, the methods and techniques to be used. The students performed the steps of the model sequentially in line with this instruction.

- In the first step, students were asked to write their personal experiences about the subject by using the techniques of memoir, fairy tale, story, diary, and conversation, individually or in pairs, depending on their preferences.
- In the second step, they were expected to create meaning by discussing as a group the experiences they had created individually. For each unit, they were asked to use a different one of the discussion techniques, which are: brainstorming, snowballing,

contrast panel, opinion development, argumentation, thinking with six hats, six shoes, circle, conversation ring, Socratic questioning, debate, panel, forum, ball bearing, aquarium, butter-bread, and case study.

- In the third step, presentations containing videos, poems, acrostics, pictures, cartoons, and music were made by the lecturer in a way that appealed to both the right and left brains of the students. In this step, sometimes, the videos are sent before the course.
- In the fourth step, activities prepared based on both the right and left brain were given to the students in line with their achievements. In each unit, tasks appealing to the right brain such as finding similarities and differences, classification, concept map, fishbone, mind map, structured grid, and puzzles, and tasks appealing to the left brain such as writing/completing stories, preparing posters, writing acrostics/poems, writing letters, drama writing, and slogan writing were assigned to the students.
- In step five, the students were asked to analyze and summarize all their learning in groups.
- In the sixth step, the students shared the information they analyzed and summarized with their classmates. At the end of this stage, students prepared a single report and uploaded it to Google Classroom until 00.00 on Thursdays. The head of the group was responsible for the preparation and sending of the reports.

First of all, a needs analysis was conducted with 13 pre-service teachers, 18 teachers, 2 school administrators, and 14 educational science experts on the data collected from a total of 21 documents, including six international reports, eight international curriculums, four national reports, and three theses. As a result of the analysis of the data, seven modules were created, and the course was conducted according to these modules. These modules are listed in Table 2.

Table 2

The Modules

Weeks	Dates	The Modules
1	Oct. 05-09	Getting acquainted, informing about the course
2	Oct. 12-16	Fundamentals of Learning
3	Oct. 19-23	
4	Oct. 26-30	Course Plan Preparation and Content Creation
5	Nov. 02-06	
6	Nov. 09-13	Principle, Approach, Model, Method, Technical Information
7	Nov. 16-20	
8	Nov. 23-27	Creating a Learning Model
9	Nov. 30 - Dec. 04	
10	Dec. 07-11	Method-Technique, Activity, Material Planning
11	Dec. 14-18	
12	Dec. 21-25	Executing the Learning Process
13	Dec. 28 - Jan. 01	
14	Jan. 04 - 08	Evaluation
15	Jan. 11-15	

Evaluation of the course was done via portfolio, self-assessment, and peer assessment. The reports from the students were evaluated by the researchers, the students were informed about the evaluations, and the reports were stored in the electronic student portfolios. Self and peer-assessment forms prepared by the researchers were filled out by the students at the end of the semester. The evaluation was done with 60% of the portfolio group score, 30% of the peer review score, and 10% of the self-assessment score.

Data Collection

The Attitude Scale towards Cooperative Learning, the Teacher Self-Efficacy Scale, the Metacognition Thinking Skill Scale, and the Student Letters were used to collect research data. Information about each scale is given below.

Attitude Scale Towards Cooperative Learning: The scale consists of 28 items and one dimension was developed by Şahin, Arseven, Ökmen, Eriş & İlğan (2017). It was seen that 28 items explained 45.38% of the total variance. In the internal consistency study of the scale, the Cronbach's Alpha coefficient was found to be 0.95, and the two-half reliability was found to be

0.90. Students who score high on the scale have more positive attitudes towards cooperative learning, while those with low scores have negative attitudes.

Teacher Self-Efficacy Scale: The scale, which consists of 24 items and three dimensions, "Student Participation," "Teaching Strategies," and "Classroom Management," was adapted into Turkish by Çapa, Çakıroğlu and Sarıkaya (2005). The internal consistency coefficient of the scale was found to be 0.93 for the whole scale.

Metacognition Thinking Skill Scale: The scale developed by Tuncer and Kaysi (2013) consists of four sub-dimensions: "Thinking Skills," "Reflective Thinking Skills for Problem Solving," "Decision Making Skills," and "Alternative Evaluation Skills," for a total of 18 items. In the internal consistency study of the scale, the Cronbach Alpha coefficient was found to be 0.88.

Student Letters: A letter was received from each student in which they wrote their positive or negative opinions about the teaching process of the Teaching Principles and Methods course. It is thought that these letters will provide a rich perspective on the students' feelings and thoughts about the teaching process.

Quantitative pre-test data were collected using Google Form between October 12 and 16, 2020, and post-test data were collected using Google Form at the end of the semester between January 21 and 23, 2021.Student letters were collected together with the final reports on January 07, 2021, at the end of the semester. It was observed that all students who took the course wrote and sent letters.

Analysis of the Data

It was observed that the pre-test and post-test scores of the Attitude towards Cooperative Learning Scale were not normally distributed, but the pre-test scores of the Teacher Self-Efficacy Scale and the Metacognitive Thinking Scale were normally distributed. On the other hand, the

post-test scores were not normally distributed. For this reason, in the analyses, the Wilcoxon Signed Ranks Test was used for related measurements from non-parametric tests.

The qualitative data analysis process was carried out in three stages (Kılıç, Aydın, Ökmen & Şahin, 2019) as "organizing", "summarizing" and "associating/interpreting" data. First and foremost, the data were organized and coded as S1, S2,... S111.The content analysis approach was used in summarizing the data. In this analysis process, first the data was coded, then the codes were analyzed and categories were formed. As a result of the content analysis, it was discovered that the data was organized into four major categories: "Learning Steps," "Course Execution," "Evaluation/Feedback/Communication," and "Learning Outcomes."The data were interpreted during the associating and interpretation phases by establishing relationships between the categories.

Validity and Reliability

Cronbach Alpha values were checked to determine the internal consistency coefficients of the scales. The Cronbach Alpha coefficients for the pre-test and post-tests of the scales are given in Table 3.

Table 3

Reliability Coefficients of Scales

	Pre-Test	**Post-Test**
Attitude Scale Towards Cooperative Learning	0.955	0,955
Teacher Self-Efficacy Scale	0,904	0,951
Metacognition Thinking Skill Scale	0,803	0,879

As seen in Table 3, alpha values of all scales are above 0.80 in both pretests and posttests. Values between 0.80 and 0.95 indicate a high level of reliability (Coaley, 2010; Kline, 1986). In this case, it can be said that each scale is highly reliable.

For the validity and reliability of the qualitative data, both the application and the research part of the study were carried out by the researchers themselves, and a long-term interaction was carried out with the participants. The research process was reported in detail and transparently. The researchers read the data several times, and the categorization processes were meticulously carried out. The relationships between the categories were constantly examined throughout the analysis process, and the findings were meticulously arranged and interpreted. The data was interpreted objectively, and the researcher's tendencies were not reflected in the research. The raw data from the study was stored for future review when necessary.

Results

The results are presented under four headings, which are "Student Views on the Model", "Attitudes towards Cooperative Learning", "Teacher Self-Efficacy Beliefs" and "Metacognitive Thinking Skills".

Student Views on the Model

Student opinions are presented under four headings, "Learning Steps", "Execution of the Course", "Evaluation/Feedback/Communication" and "Course Outcomes".

Learning Steps

It has been observed that students' views on learning steps are grouped under six categories, which are "creating experiences," "making meaning," "conceptualization," "application," "analyzing" and "sharing."

Creating Experiences. Students have positive opinions about the step of creating experiences. They stated that it is pleasant and beautiful, that they develop their imagination, knowledge, and skills in writing techniques, that it increases learning and permanence, and that it draws their attention to the subject by reminding them of their prior knowledge. At this step, it

was observed that the students are satisfied with seeing the achievements in their own experiences and evaluate their own educational lives. On the other hand, it was also observed that some students think that this step gets boring over time.

Meaning Making. At this step, it was seen that the students had positive opinions about the step. They think that they gained knowledge and skills in discussion techniques, reinforced the subject, came to the course ready and gained critical and different perspectives. However, it has also been observed that there are some negative opinions about the techniques: that they are difficult to apply, that they are not suitable for distance education, and that they were not informed about how to apply them.

Conceptualization. Students think that the lecturer's lectures are impressive, the presentations are remarkable and entertaining, far from detailed and clear, and they are easy to understand. They also think that the lectures are effective and efficient, provide permanent learning, were prepared with great effort, and make the students feel valued. It was seen that the students liked the cartoons, poems, short words, and sayings used in the presentations and found them effective. It was also determined that the students thought that the videos used in the presentations and sent home were interesting and entertaining, had a positive effect on learning, opened their horizons, and helped them focus on the course. However, it has also been observed that there are a few students who prefer more didactic and detailed information and think that the visuals are below their level.

Application. It was observed that the students found the activities in this step fun, beautiful, and intriguing. It was determined that the students have positive opinions about this step, which enables them to learn different methods and techniques, increases their learning,

eliminates their deficiencies, and improves their creativity. However, it was also observed that the students found this step challenging and thought that some activities were unnecessary.

Analysis. It was observed that the students thought this step was nice and enjoyable and provided permanence. However, it was also observed that there are students who complain that report writing is time-consuming and tiring, that examples for the report are missing, and that some of their groupmates do not contribute.

Sharing. Students have opinions about this step that it is beautiful and fun, gives them the ability to make presentations and express themselves, provides active participation, increases learning and permanence, and listening to other presentations is beneficial in terms of learning and recognizing their deficiencies. There is also an opinion that evaluating other groups makes them feel important. On the other hand, there are opinions that making presentations is stressful and there are too many presentations.

Execution of the Course

After the analysis, it was seen that the students' views on the conduct of the course were grouped under three categories: "design," "instruction," and "group work".

Design. It was observed that the students think that the model is programmed, systematic, suitable for distance learning, different from other courses, and fun. It was also observed that the students find the model very productive and instructive in terms of learning, and that they think that complete learning takes place and that the information is permanent. Students also think that the model is student-centered and enables them to learn by being responsible for their own learning, by experience, and actively participating. It is also thought that the model is suitable for

daily life, focused on application/production, and although it is difficult at first, it gets easier over time.

However, it was observed that the students thought that the model was intense, time-consuming, and difficult, that the instructors were passive, and that the main burden was on the student. They also think that the model is not flexible, creates anxiety and stress, and does not provide complete and permanent learning. Repetitive, boring, and too detailed are criticisms of the content.

Instruction. It was determined that the students found the instructions effective, useful, and exciting, and thought that they were prepared meticulously. The students stated that the instructions were confusing for them in the first few weeks, but they got used to it in the following weeks. It was also observed that the students find the instructions suitable for individual differences and are satisfied with the options offered. However, it was also determined that the students think that the instructions are not clear and detailed enough, and they complain about the lack of resource suggestions.

Group Work. It was observed that the students were generally quite satisfied with the group work. It was also observed that the students find group work nice and fun, and think that it is beneficial in terms of friendship, communication, socialization, unity, and solidarity. In addition, students also think that group work increases efficiency and learning, provides peer learning, reduces their burden, and provides motivation for learning. It was also observed that students are satisfied with being the president and experiencing leadership. On the other hand, while there are students who think that group work is effective, there are also some students who criticize group work. They think that group work is not productive because it is difficult to come together and make decisions together. They stated that they experience the stress of being

embarrassed in front of the group members and that they have problems due to the irresponsibility of the group members.

Evaluation, Feedback, and Communication

It was observed that students' views on evaluation, feedback, and communication are grouped under three categories: "evaluation", "feedback", and "communication".

Evaluation. It was observed that the students are satisfied with the absence of exams and find portfolio, self, and peer assessment nice and useful. It was determined that the students are satisfied with the fair, timely, detailed, and meticulous evaluations. It is thought that peer evaluation ensures fairness and participation of students in the process. On the other hand, it was also observed that there are students who prefer to take midterm and final exams by taking traditional courses. They stated that they get low grades in this way and that they have grade anxiety.

Feedback. It was observed that the students think that they are given effective feedback, that they realize their mistakes or deficiencies with the feedback, and that they make progress. However, it was also observed that the students complained that the feedback was not clear and unambiguous, that they were given in general, not specific to the groups, and therefore they could not realize their deficiencies and could not complete them.

Communication. It is seen that the students are satisfied with the effort spent on them, showing interest, love, patience, understanding, smiling, creating a democratic classroom environment, giving importance to their thoughts, answering their questions, and the guidance and support provided. However, it was also seen that there were students who complained about

the lack of communication, not answering the questions, giving late answers, or not giving clear answers.

Course Outcomes

It was observed that students' views on course outcomes are grouped under four categories, which are "knowledge," "skill," "attitude" and "value."

Knowledge. Students think that they learned the following information within the scope of the model:

- Fundamentals of Learning: Concepts related to learning, curriculum, constructivist approach, student-centered understanding.
- Learning and Teaching Process: Methods-techniques, teaching principles, teaching models, teaching materials.
- Evaluation: Evaluation techniques, evaluation principles.

Skill. Students think that they acquired the following skills within the scope of the model:

- Professional Skills: Professional experience/teaching, making presentations, preparing course plans/programs, creating content, creating learning designs, using models and techniques, and preparing materials.
- Personal Skills: Getting out of the learning pit, using time effectively, planning, writing, researching, critical thinking.
- Social Skills: Cooperative learning, communication, leadership, and discussion.

Attitude. Students think that they have acquired the following attitudes within the scope of the model:

- Professional Attitude: Understanding the importance of the plan/program, student-centered/constructivist approach, positive attitude towards students, understanding the importance of individual differences, positive attitude towards teaching.
- Personal Attitude: Gaining self-confidence, realizing its potential, realizing the power of thought.
- Social Attitude: Understanding the importance of group work.

Value. It was observed that the students think that they gained the values of responsibility, tolerance, non-judgment, understanding and compromise, respect for differences, patience, and unity as a result of the application of the model.

Attitude Towards Cooperative Learning

Wilcoxon Signed Ranks Test pre-test and post-test results showing students' attitudes towards cooperative learning are given in Table 4:

Table 4

Wilcoxon Signed Rank Test Pre-test and Post-test Results

Factor		N	Mean Rank	Sum of Rank	z	p
Total Score	Negative Rank	28	32,59	912,50	-3,650	,000
	Positive Rank	54	46,12	2490,50		
	Equal	5				
	Total	87				

When Table 4 is examined, it is seen that there is a significant difference (z =-3.650, p =0.000) between the students' attitude scale towards cooperative learning pre-test and post-test scores.

Teacher Self-Efficacy Belief

Wilcoxon Signed Ranks Test pre-test and post-test results showing students' teacher self-efficacy beliefs are given in Table 5.

Table 5

Wilcoxon Signed Ranks Test Pre-test and Post-test Results

Factor		n	Mean Rank	Sum of Rank	z	p
Total Score	Negative Rank	20	29,53	590,50	-5,425	,000
	Positive Rank	65	47,15	3064,50		
	Equal	5				
	Total	90				
Student Participation	Negative Rank	18	29,64	533,50	-4,618	,000
	Positive Rank	56	40,03	2241,50		
	Equal	16				
	Total	90				
Teaching Strategies	Negative Rank	18	37,00	666,00	-4,367	,000
	Positive Rank	60	40,25	2415,00		
	Equal	12				
	Total	90				
Class Management	Negative Rank	18	31,39	565,00	-5,181	,000
	Positive Rank	63	43,75	2756,00		
	Equal	9				
	Total	90				

When Table 5 is examined, it is seen that there is a significant difference in the favor of the post-test between the students' Teacher Self-Efficacy Belief Scale pre-test and post-test scores. The differences are (z=- 5.425, p=0.000) in total scores, and (z= -4.618, p=0.000) in student participation, (z= -4.367, p=0.000) in instructional strategies, and (z= -5.181, p=0.000) in classroom management sub-dimensions.

Metacognitive Thinking Skills

Wilcoxon Signed Ranks test pre-test and post-test results showing students' metacognitive thinking skills are given in Table 6:

Table 6

Wilcoxon Signed Ranks Test Pre-test and Post-test Results

Factor		n	Mean Rank	Sum of Rank	z	p
Total Score	Negative Rank	26	29,40	764,50	-3,620	,000
	Positive Rank	50	43,23	2161,50		
	Equal	7				
	Total	83				
Thinking Skill	Negative Rank	29	36,83	1068,00	-1,033	,302
	Positive Rank	41	34,56	1417,00		
	Equal	13				
	Total	83				
Reflective Thinking Skills for Problem Solving	Negative Rank	24	28,92	694,00	-3,369	,001
	Positive Rank	47	39,62	1862,00		
	Equal	12				
	Total	83				
Decision Making Skill	Negative Rank	25	28,26	706,50	-1,904	,057
	Positive Rank	37	33,69	1246,50		
	Equal	21				
	Total	83				
Alternative Evaluation Skill	Negative Rank	19	29,61	562,50	-4,047	,000
	Positive Rank	51	37,70	1922,50		
	Equal	13				
	Total	83				

When Table 6 is examined, it is seen that there is a significant difference in favor of the post-test between the students' Metacognitive Thinking Skills Scale pre-test and post-test scores. The differences are (z =-3.620, p =0.000) in total scores, and (z =-3.369, p =0.001) in reflective thinking skills towards problem-solving, and (z =-4.047, p =0.000) in alternative evaluation skills sub-dimensions. Although there are increases in students' scores in thinking skills (z = -1.033, p = 0.302) and decision-making skills (z = -1.904, p = 0.057) sub-dimensions, these increases are not significant.

Conclusions and Discussion

The results of the research can be summarized as follows:

- It was concluded that the students generally have positive attitudes towards the "creating experiences," "making meaning," "conceptualization,", "application," "analyzing," and "sharing" steps of the model, and each of these steps is effective.
- It was observed that the students generally have a positive attitude towards the design of the model, but it was also observed that they think that it is difficult and time-consuming.
- It was found that the students think that the model is student-centered, enables them to learn by actively participating and experiencing, and is application/production-oriented.
- It was determined that the students find the instructions effective and useful, but they want them organized in a more understandable and detailed way.
- The students were found to be generally pleased with their portfolios, as well as their self- and peer evaluations.
- It was found that the students think that the feedback helps them to develop and progress by making them realize their mistakes and deficiencies, but they have difficulty recognizing their deficiencies because the feedback is given in general.
- It was observed that the students are satisfied with the effort being spent on them, showing interest, love, understanding, smiling, creating a democratic classroom environment, and the guidance and support provided to them, but some students think that they have communication problems.
- It is seen that the model has a positive effect on students' attitudes towards cooperative learning. It was concluded that the students generally find group work fun, beneficial in

terms of communication and solidarity, and that they think that different ideas increase learning and productivity.

- It was observed that the model had a positive effect on students' teacher self-efficacy beliefs in total and in the "student participation," "teaching strategies," and "classroom management" dimensions. It was also observed that the students gained information about the basics of learning, the learning-teaching and evaluation processes, and professional skills such as preparing a course plan, making a program, creating content, creating a learning design, and preparing materials.
- It was seen that the model positively affected students' metacognitive thinking skills in total and in "reflective thinking towards problem solving" and "alternative evaluation" dimensions.
- It was observed that students gained personal skills such as writing, research, critical thinking, planned work, and effective use of time, and social skills such as communication, leadership, and discussion.
- It was concluded that the students gained positive attitudes in professional, personal, and social fields.
- At the end of the course, it was determined that the students gained values such as responsibility, tolerance, respect, and patience.

It is thought that various features of the model have a combined effect on its success. Explanations and discussions on these features are given below.

Model Steps: It is thought that the use of various teaching styles together, with a balanced and inclusive approach, and the model steps that include activities for right and left-brain characteristics contribute positively to the effectiveness of the model. In support of this idea,

Usta (2006) found in his study that activities based on learning styles created significant differences in students' achievements and attitudes. Güven (2007) also concluded that activities based on learning styles have significant contributions to students in terms of achievement, attitude towards the course, and permanence of what has been learned. Abu-Ameerh (2014) also concluded in his research that learning styles affect students' metacognitive thinking skills.

Individual/Group/Class Works: Within the scope of the model, the result of individual study before the class is effective. This is supported by several studies in the literature showing that the pre-class work increases the active participation of the students in the course and the success of the course (Akgün & Atıcı, 2017; Arslan & Kuzu, 2019; Frydenberg, 2012; Herold, Lynch, Ramnat & Ramanathan, 2012; Ökmen, 2020; Ronkainen, 2015; Stone, 2012; Talbert, 2012; Yamane, 2006).

It is thought that cooperative group studies have a great contribution to the effectiveness of the model. Studies show that the cooperative learning approach increases student achievement (Meral & Şimşek, 2014; Nam & Zellner, 2011; Ökmen, 2020; Shy-Jong, 2007; Subba (2014) and their motivation (Arısoy, 2011; Ökmen, 2020). Harianto, Rusijono, Masitoh, and Setyawan (2020) and Hurst, Wallace, and Nixon (2013) think that social interaction between students in courses improves students' critical thinking and problem-solving skills. The results of studies done by Bashir, Nisar and Gul (2020), Carpenter and Pease (2013), Cecchini, Fernandez-Rio, Mendez-Gimenez, Gonzalez, Sanchez-Martínez and Carriedo (2020), Redes (2016), and Sawyer and Obeid (2007) indicated that collaborative studies improved students' social skills, sense of responsibility, self-esteem, and confidence. Kılıç and Şahin (2017) concluded that cooperative learning activities allow students to exchange ideas with each other, provide peer guidance to students who have difficulties, and enjoy working in groups.

From the research, it is concluded that the presentations made in the classroom are effective. This result is supported by a study done by Göçer. Göçer (2008) stated that the presentations made by the students gave them the experience of speaking in front of the public, let them be active in the classroom and in the social environment, and helped them be effective as individuals with the determination to succeed.

Student-Centered/Active Learning Approach: It can be said that being suitable for student-centered and active learning approaches is very important for the model to be effective. Supporting this result, studies done by other researchers show that student-centered and active learning approaches positively affect students' attitudes towards the course ((Baş, 2009; Kılıç & Şahin, 2016; Koç & Demirel, 2004; Platt, Raile & Yu, 2014; Topan, 2013), increase student motivation (Sırakaya, 2017; Su & Cheng, 2015; Yıldırım & Demir, 2016), increase students' academic achievement and permanence, and provide depth in understanding (Kılıç & Şahin, 2016; Maden, Durukan & Haigh, 1997; Smart & Csapo, 2007; Topbaş & Toy, 2007). In addition, in student-centered education, students' attitudes are positively affected by teachers' being tolerant towards their students, respectful of their rights and personalities, unbiased, open to discussion, guiding, helpful, and consistent in democratic behaviors (Yağcı, 1998). Students find the course challenging and time-consuming because they take responsibility for their own learning. Making students experience the complexity, difficulties, and real problems of daily life is one of the requirements of student-centered education. In student-centered education, it is attempted to reveal each student's strengths and increase the level of critical thinking by assigning students challenging tasks to complete collaboratively (Şahin, 2020).

Evaluation System: It is thought that the model's evaluation system is also effective in its success. In support of this research, Asturias (1994), Birgin (2008), Barton and Collins (1997),

Dut-Doner and Gilman (1998) and Klenowski (2000) stated that the portfolio method encourages students to learn, enables them to actively participate in the evaluation process, gives them the opportunity to evaluate themselves and see their shortcomings, and enables them to take responsibility for learning. They also emphasized that it is a communication tool between the teacher and the students. Similar to the results of this study, Çevikbaş and Argün (2016) concluded that facilitating and encouraging feedback positively affected student self-esteem, while Bayat (2010) concluded that self- and peer-evaluation activities reinforced students' learning and positively affected their self-confidence.

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Team of Caring Educators Delivering a Specialized Math Curriculum for Racialized Youth During COVID-19

Sally Abudiab, Ardavan Eizadirad, and Brice Baartman

Abstract

This study examined the efficacy of an afternoon and weekend academic program called the *Community School Initiative* (CSI) during the COVID-19 pandemic. CSI was offered to racialized students and families from the Jane and Finch community in Toronto which is one of the most under-resourced neighbourhoods in Canada. It involved a partnership between private social enterprise *Spirit of Math* and non-profit organization *Youth Association for Academics, Athletics, and Character Education* (YAAACE). Seven teachers participated in a focus group and 33 students and parents completed a survey to express their experiences attending the CSI. Findings were identified using thematic analysis from a Critical Race Theory paradigm. Key characteristics of effective structural community-programming were identified. The results highlight the importance of access to opportunities in a culturally reflective manner to ensure student success through continuity of care particularly on evenings and weekends involving a team of caring educators.

Keywords: math curriculum, poverty, achievement gap, community-based programming

Sally Abudiab completed her Master of Science at the Rehabilitation Sciences Institute Studies at the University of Toronto. She can be reached at sally.abudiab@mail.utoronto.ca

Ardavan Eizadirad, Ph.D. is an Assistant Professor in the Faculty of Education at Wilfrid Laurier University in Waterloo, Ontario, Canada. He can be reached at aeizadirad@wlu.ca

Brice Baartman is in his 2nd year in the Master of Teaching program at the University of Toronto. He can be reached at brice.baartman@mail.utoronto.ca

The COVID-19 pandemic created significant disruptions to education systems worldwide. Approximately 1.6 billion learners across the globe were impacted because of school closures and the abrupt shift to remote learning (Paudel, 2021; Pokhrel & Chhetri, 2021), some of which were without adequate support systems in place to engage learners equitably in virtual spaces. Although educational disturbances impacted many students during the pandemic, community leaders and scholars have called for urgent action to address the growing achievement gap for marginalized students who did not have the same opportunities to engage in remote and virtual learning. For example, racialized students from low-socioeconomic families were without the prerequisites for virtual learning, including access to devices, reliable internet connections, or an environment conducive to learning such as private spaces. Left unaddressed, these opportunity gaps accelerated the widening of achievement gaps due to a lack of optimal conditions for teaching and learning.

This study examined the efficacy of an afternoon and weekend academic program called the *Community School Initiative* (CSI) during the COVID-19 pandemic. CSI was offered to racialized students and families from the Jane and Finch community in Toronto which is one of the most under-resourced neighbourhoods in Canada. It involved a partnership between private social enterprise *Spirit of Math* and non-profit organization *Youth Association for Academics, Athletics, and Character Education* (YAAACE). In our study, seven teachers participated in a focus group and 33 students and parents completed a survey to express their experiences attending the CSI. Findings were identified using thematic analysis from a Critical Race Theory paradigm. Key characteristics of effective structural community-programming were identified.

This is the first study examining structured programming which was designed for elite, gifted students in mathematics adapted to be delivered to under-achieving students, many of

whom have special education needs and facing greater socioeconomic barriers. Our study in the midst of the pandemic explored the following questions: (1) What are the key characteristics of structured programs that effectively support racialized and low-income students during the pandemic? And (2) What are the impacts of accessible and affordable structured programs from the perspective of racialized students and parents on the achievement and opportunity gap? Structured programs may not be effective without consideration for the local needs and circumstances of students. Findings from this study can help inform policymakers and stakeholders in mitigating barriers to high-quality supplementary programming for racialized and low-income communities.

COVID-19 and Education Disruptions Intensifying the Opportunity Gap

Throughout this article, we refer to the achievement gap as the persistent disparity in academic performance between different groups of students, such as between white and minoritized students and those from higher-income and lower-income households (Hartney & Flavin, 2014; Rozek et al., 2019). With robust evidence that suggests the achievement gap has since widened due to the additional barriers created by the pandemic (Goudeau et al., 2021), there is a need to provide more extensive support for Black and marginalized students to mitigate such systemic barriers and inequities. In Canada, similar to other countries, public health measures were repeatedly adjusted over time in response to COVID-19 ranging from masking and social distancing to school closures, leaving very young children and those from marginalized groups (e.g., immigrants, racialized minorities) most affected (Gallagher-Mackay et al., 2021; Royal Society of Canada, 2021; Toronto Foundation, 2021).

The Toronto District School Board, one of the largest school boards in North America, has experienced ongoing closures and multiple transitions to online, remote learning since March

2020 (Gallagher-Mackay et al., 2021). Low-income and racialized students were impacted more severely by such changes to remote learning as racialized neighbourhoods had the most severe COVID-19 outbreaks. The result of these educational inequities negatively affects the academic pursuits of students, thereby generating lifelong impacts on the academic and career pathways of students, their families, and the broader community. Educational policies typically regulate school learning resources, and thus greatly influence outcomes related to education including health and wellbeing. Without intentional targeted policies to mitigate on-going inequities that have intensified due to COVID-19, there may be an unintended shift of priorities that focus on a narrow range of student knowledge and literacy and/or numeracy, placing more students in danger of academic regression. It is essential to understand the technological barriers and challenges associated with remote learning to increase engagement and online participation in distant learning, and on a larger scale mitigate opportunity gaps, particularly for students from racialized and under-resourced communities.

The shift from in-person to remote learning revealed that elementary and secondary schools were differentially equipped to minimize the disruptions caused by COVID-19, with technology either previously embedded into the curriculum (e.g., use of smart boards, use of online learning platforms, and student designated worksites for homework) or readily available for students who had to switch to distant learning. Schools in the Jane and Finch neighbourhood, located geographically in northwest Toronto, experienced added challenges due to pre-existing historical disparities relating to more limited access to resources and funding. Such schools did not have sufficient and consistent access to resources and technologies for distance learning. As it concerns youth and adolescents in particular, schools in the Jane and Finch community have the highest ranking on the Toronto District School Board's Learning Opportunity Index (LOI),

which means they face the greatest systemic challenges in their community as it relates to educational achievement and barriers to effective teaching and learning (Eizadirad, 2019). For example, three of the top five schools most in need of additional resources are located in the Jane and Finch community. Families from these schools have a lower median income, a greater percentage of adults with lower educational attainment, fewer adults with university degrees, and more single-parent families than in other communities across Toronto. Thus, structurally students attending schools from lower socio-economic backgrounds continued to grapple with more barriers.

The Community-School Initiative: A Public-Private Partnership Between YAAACE and Spirit of Math

The Youth Association for Academics Athletics, and Character Education (YAAACE), a non-profit founded in 2007, created a program to help mitigate the inequality of opportunity that was prohibiting student success given the plethora of risk factors facing the Jane and Finch youth and the schools within the community experiencing disruptions due to COVID-19. The objective of YAAACE is to help marginalized, racialized children and youth from under-resourced communities through comprehensive year-round programming and activities in a manner that is affordable and accessible to create continuity of care (Eizadirad, 2020). YAAACE strives to close the achievement gap by focusing on minimizing the opportunity gap through its social inclusion strategy. YAAACE's social inclusion strategy was co-constructed by key stakeholders from the community to prioritize the interests and needs of children and youth. Some of the programs offered by YAAACE includes academics, athletics, recreation, technology, and the arts. You can learn more about the programs offered and the social inclusion strategy via the YAAACE website: https://yaaace.com/

The Community School Initiative (CSI) was initiated as a supplementary academic program offered to residents of the Jane and Finch community in partnership with the for-profit enterprise Spirit of Math (SoM). Together they delivered a structured math curriculum to students in grades two to eight, ages eight to 14 years old, from September 2020 to May 2021. SoM is an international enterprise servicing over 11,000 exceptionally performing students across 40 hubs in North America and Pakistan. The CSI provided alternative academic support for racialized students afterschool and on weekends to improve their math skill guided by the curriculum, resources, and pedagogies provided by SoM. The cost of the program was subsidized at $100 per person, although the program typically costs $3000 as a private sector service. The aim was to continue to deliver high-quality supports and resources for children and youth to mitigate larger systemic inequities impacting the residents throughout the pandemic rooted in the inequality of opportunity.

Theoretical Frameworks

Two fundamental ideas guided the theoretical framework for this study. The first draws from Critical Race Theory (CRT) in education. CRT centres the cultural disconnect and the barriers in classrooms and schools, particularly for minoritized students and educators, associated with systemic racism and its intersection with colonial logic and white supremacy. Given the widening achievement gap and overall lower expectations held for students of colour, it is important to engage in anti-racist work in education research. By using CRT, it is possible to analyze the social conditions that perpetuate racism and systemic inequities within institutional policies and practices that lead to achievement disparities across different social groups. The second theoretical framework draws from YAAACE's social inclusion framework. YAAACE seeks to engage students and families in the Jane and Finch neighbourhood through socio-

culturally relevant, responsive, and sustaining year-round programming (see Eizadirad, 2020, for a more in-depth history of YAAACE; Paris, 2012). The social inclusion framework is operational and ensures that programs and services are delivered in a way that is affordable, accessible, and socio-culturally relevant to the needs to mitigate the opportunity gap impacting community members.

Methods: Research Setting, Design, and Participants

The present study investigated the experiences of seven Ontario Certified Teachers (OCT) and 33 racialized students and families from under-resourced communities attending the CSI during the pandemic. In particular, we were focusing on identifying key characteristics and strengths that contributed to an enjoyable virtual learning experience as well as barriers and challenges that persisted during program implementation. Early in the research design phase, a decision-making committee of 10 people was created with two students attending YAAACE programs, two parents who were actively involved in YAAACE, two research associates, the director of YAAACE, the principal investigator, and two SoM executive board members. The decision-making team was critical for establishing a plan for knowledge translation, creation of survey and focus group questions, and consulting. For example, youth and parent advisors emphasized the importance of making information available in formats that are accessible to the community and non-academics. In response, we created various infographics and posted them on the website for the research project (www.communityschoolinitiative.com) periodically to make the information accessible in community-oriented language. The meetings were conducted remotely via Zoom to make them more accessible. All stakeholders were part of discussions and decision-making about collecting the data and sharing the findings and resources with the community. It was agreed that surveys and a focus group with the teachers would complement

one another and address the research objectives. SoM teachers rigorously trained the teachers prior to start of the program to ensure they were delivering the program as it was intended. Teachers were asked only to use the pedagogies and lessons from SoM guided by the Ontario math curriculum. Overall, four teachers and 33 students and parents completed the survey portion of the study and nine teachers participated in the virtual focus group.

Data Collection and Analysis

The CSI program ran from September 2019 to September 2020. Data were collected between June to July 2021 upon completion of the CSI program. The survey was administered to teachers, students, and parents through Qualtrics, a secure data collection website, and took approximately 30 minutes to complete. They were completed anonymously and included a combination of open-ended and Likert scale questions. Questions captured demographical data about participants and information about their experiences attending the CSI. Parents and students were sent a link to complete the survey on their personal devices; however, in the case that was not feasible, laptops were provided to parents and students to complete the survey while attending the program (at the time, it was allowed by health guidelines). A $30 Amazon gift card was provided to those who participated as a token of appreciation for their time. The decision-making committee advocated for Amazon gift cards, identifying them as practical given the pandemic conditions and the needs of the families in the community.

A focus group was conducted on Zoom with all the teachers implementing the SoM curriculum to gather more information about their experiences delivering the program in alignment with SoM pedagogies. The duration of the focus group was 90 minutes and conducted with two research assistants and the principal research investigator. Responses were examined by the core research team using CRT as a paradigm and thematic analysis as a methodology (Clarke

& Braun, 2017; Denzin & Lincoln, 2000). The research team read the focus group transcripts and survey responses to identify codes. Related codes were then grouped to formulate more prominent themes that aligned with key trends identified in the literature review guided by CRT and YAAACE's social inclusion framework. The narratives expressed by the teachers helped identify inequities that served as barriers to student achievement, impeding their progress to achieve their full potential, as well as barriers to confidence in teaching in the specialized math curriculum. Descriptions of the participants can be found in Appendices A and B at the end of this paper.

Results

The CSI provided a structured math curriculum to participants in the program in a manner that was affordable, accessible, and socio-culturally relevant and sustaining to the needs of the racialized students and families (a combination of in-person and remotely due to COVID-19 health guidelines). Each student was placed in a grade based on diagnostic assessments and given a personal binder to keep track of their progress. Teachers described many positive aspects of the SoM program that were appreciated. For example, teachers appreciated having step-by-step structured math lessons beforehand. This made it possible for teachers to devote more time to assisting students and less time on planning and prepping lessons. Teachers also mentioned how the structured nature of the program made it easier to identify kids who required more supports. Further, teachers agreed that it was not difficult to implement the program, with one teacher noting:

> I'm not having that much difficulty in terms of providing the program to my students. My students seem to still be pretty engaged. I do have some of the junior kids and a lot of them said their favorite subject is math, so you guys are definitely doing something that's

> engaging them in Spirit of Math for them to start turning around, because most kids do not say that. I mean, yes, they said basketball too, but they also said my favorite subject is math.

SoM's math curriculum is designed in progressions such that students continue to advance on the previous knowledge learned each time they revisit the subject matter. This way it is inherently student-centred and works with the students' unique strengths in the program. One parent stated that the strength of the CSI was that "the teachers and staff reflect the cultural backgrounds of the students." Further, there was a shared sentiment that the program was family-centred, supportive, and community-focused. An example of family-centred learning was illustrated when one parent stated in the survey that:

> Virtual learning at home has given me an opportunity to observe the teacher's methods and strategies for the work. There are also videos on the SOM portal that break down the strategies for each lesson so I can ensure I'm reinforcing the same techniques without confusing my son with different strategies.

The second most significant finding evident from the focus group was the strength of the teacher's working as an interdisciplinary team with coaches and volunteers to support students and improve their engagement and overall experience in the program. The teachers agreed that coaches in particular increased student engagement and accountability in virtual platforms. This contributed to creating continuity of care in alignment with the YAACE's social inclusion strategy. For example, one teacher said, "the coaches helped huge in that aspect and getting them there and to help us monitor whose cameras are on or off." One teacher described coaches as the surrogate parents of YAAACE stating, "the coaches are pretty much the YAAACE surrogate parents. They make sure the kids are engaged."

Similarly, parents shared immense praise for the program and the and sports incentive aspect of the program. As a survey response, one parent noted:

> The academic portion is just as (if not more) important for obvious reasons. It reinforces that they are more than just athletes. It teaches them that they are able to accomplish difficult things if they try hard. And it shows them that they are valued which encourages them to try harder. The public school system often does not provide this, especially in lower-income neighbourhood which are predominantly Black.

The presence of the coaches was instrumental as the students had existing relationships with them rooted in common interests and respect. Coaches provided mentorship in and out of the classroom. One parent reflected on the difference in their child's engagement in public school compared to attending the CSI:

> Virtual learning is tough for both students and parents. It's not as effective nor as motivating as in-person learning. The students learn virtually for school all day which is hard enough as it is. When they are in person, the masks are awkward and some kids are probably scared of getting sick which is a distraction. Having said that, the SoM teachers are amazing at keeping the boys motivated and engaged whether online or in person. Very different experience than the public-school virtual experience.

The effectiveness of coaches being involved was ranked very high at 9.33 by the parents. As a collective, the continuous access to teachers and coaches and their direct on-going communication, support, and collaboration helped increase student engagement. For example, student cameras were turned on more consistently for online classes and tasks were completed more on time due to the trusted rapport and the high expectations set by the team of teachers and coaching working together to support students.

Differences in marking student work was an area identified with conflicting expectations between YAAACE teachers and SoM instructors. As part of the SoM expectations, students either get the question right or wrong without partial marks given. Teachers expressed frustrations about not being able to give partial marks or more time to students to complete certain tasks. They felt getting it all right or wrong did not align with best practices and may contribute to reducing students' confidence in trying to master the content. As one teacher explained:

> The student got 30% on the work, and why did they get 30%, not because their answers weren't correct, but because they didn't do it the way expected. Therefore, if they do too many steps it's a mark deducted, or if they do too little, also marks off.

Teachers felt that the SoM pedagogy needed more adaptations and flexibility to meet the needs of YAAACE students. As another teacher states, "the issue is they don't allow us to use external resources or even resources within our own daily practices as part of the curriculum". Overall, numerous teachers attributed this barrier to the typical curriculum and pace of the SoM programs being tailored towards gifted, high-achieving students. As one teacher explained:

> This program is definitely geared towards kids that excel in math and most of our kids are struggling and most of them are on IEPs [Individual Education Plans]...a lot of these kids need the extra time for processing. So you know as a teacher, do I kind of follow the Spirit of Math guidelines or do I follow the needs of my child, so that's sort of what I try to figure out.

Overall, teachers felt the benefits of the program outweighed the processes that could have been improved. Clarifying these expectations and further adapting the SoM curriculum, expectations,

and assessment procedures to meet the needs of lower achieving students is an area that needs further exploration to improve the effectiveness of the CSI.

Many challenges were associated with teaching, learning, and parenting in a remote and blended learning model associated with technology access and challenges with getting their child/children to navigate the remote educational platforms. As the survey results indicated, most parents, students, and teachers preferred in-person learning. One parent observed that "remote learning is not an ideal model for a child with ADHD [Attention Deficit Hyperactive Disorder]," and another parent shared that for their children it was "harder to focus and learn compared to in-person learning." For students, more than 70% said they prefer in-person learning with one student stating that, "I can't enjoy certain subjects where I do not get to do hands-on activities which then makes learning those subjects very boring and makes it a burden to complete those online worksheets and do the work". Teachers stated that teaching remotely made assessing student engagement, their ability to support students one-on-one, and the collection of student work more difficult. Teachers also noticed more inconsistent attendance from the students in a remote context, which made it challenging for teachers to progress through the SoM curriculum expectations. There were also challenges with assessing student engagement remotely with cameras off, as body language was not observable since many cameras and mics were turned off during the online learning sessions.

Overall, although there were many challenges and obstacles due to COVID-related disruptions, the CSI played a positive role for participants by offering students extra-curricular programming and academic support that was culturally relevant, instructed by certified teachers, basketball coaches, and volunteers that were representative of the mainly Black student demographics. Overall, teachers, parents, and students as a whole frequently stated that the CSI

provided students who were having difficulty in the educational system with a chance to improve and grow socially, emotionally, and academically even during the pandemic on evening and weekends. By the completion of the program, the majority parents and students reported having increased confidence in their numeracy abilities.

Discussion

This study employed thematic analyses guided by CRT tenets to understand teachers' experiences delivering a structured math curriculum to racialized students from low-socioeconomic backgrounds. Moreover, student and parent perspectives were explored to better understand the effectiveness of the program and the systemic barriers impacting teaching and learning conditions during the pandemic. The thematic analysis revealed that culturally relevant and responsive pedagogies, along with cross-professional teams (e.g., coaches, support workers, volunteers), were critical factors for student success through creation of continuity of care on evenings and weekends.

Effective Program Implementation

A critical examination of initial digital pedagogy adoption by Greenhow et al. (2021) found that many tensions have arisen between teachers, parents, and policy-makers due to major differences in educational experiences for students who were subject to different deliveries of remote digital pedagogy. With the prevalence of online and blended models of education projected to increase in the future (O'Keefe et al., 2020), pedagogical approaches such as culturally responsive, student-centered, hands-on, inquiry-based, critical, and other currently utilized pedagogies are important in our classrooms. The challenge will be designing and implementing high-quality instruction, online and in-person, that supports diverse cultures and learning styles that align with best practices. This is significant to meet the needs of all students

from various social groups and communities, particularly equity-deserving students who experience more systemic barriers in schools. There is no such thing as a one-size-fits-all solution in education and understanding how to implement new innovative instructional practices and pedagogies will take some experimentation. Responses will be varied depending on resource availability, student and community needs, and teachers' capabilities. This may have a positive impact on teaching as teachers have been challenged to rapidly develop skills and adapt their pedagogies (Greenhow et al., 2021). In conclusion, opportunities for structured programming must be accessible financially and geographically to eliminate the barriers that exist in the community to attend such programs.

Culturally Relevant and Responsive Pedagogy

The need for culturally relevant pedagogy to reduce gaps in student achievement, especially for Black students, is needed given their long history of educational struggle and poor achievement due to systemic barriers and colonial practices (Maynard, 2022; McLaughlin, 2014; Wint et al., 2022). Educators need to understand their own and other cultures and understand the importance of culturally relevant teaching to reduce the academic disparities along socio-economic class, racial, ethnic, and cultural characteristics that have been observed for decades (Howard, 2003; Prater & Devereaux, 2009). When race, power, and privilege are not critically analyzed and deconstructed in classrooms, teachers risk marginalizing other cultural perspectives while sanctioning the dominant Eurocentric ideology prevalent in Canadian schools (Allen et al., 2017; Eizadirad, 2019). Critical examination of race and other sociocultural concepts that disenfranchise K to 12 students in schools must be an integral and reflective practice for teachers and administrators, including within teacher education programs. It requires teachers to get a deeper understanding of their students and the communities and families they serve. Requiring

teacher candidates to gain skills in critical reflection and critical consciousness to deconstruct the existing social order is imperative to support culturally relevant and responsive pedagogy in teacher education programs and the courses they offer.

Student-centered learning is a pedagogy that places students at the centre of their educational engagement and active meaning-making. It is a more collaborative teaching strategy than a teacher-centered classroom (Knowlton, 2000). A teacher-centered class is one where the teacher introduces "specific things that are worthy of being studied, and students are told how to interpret them" (p. 6). As part of student-centered pedagogies "learners construct their understandings through their actions and experiences on the world" (Mascolo, 2009, p.1). This is a shift away from the traditional "lecture-and-test" modes of instruction. In a student-centered classroom the relationship and role between students and teachers is more dynamic and less regimented than the more rigid teacher-centered approach (Mascolo, 2009). Studies have shown that student-centered learning environments have a positive effect on students' motivation to learn and be engaged (Pedersen & Williams, 2004).

Delivering Cross-Sectoral Structured Programs

The CSI addressed a need for affordable and accessible programming to mitigate opportunity and achievement gaps in racialized and under-resourced communities through continuity of care delivered by a team of caring educators and professionals. Teachers were challenged to alter their teaching practices and find new strategies and digital applications to engage their students and communicate with parents (e.g., Kahoots, Brightspace, Khan Academy, WhatsApp), and educate themselves in finding "new ways to get students more involved and excited about their education" as one teacher explained. In terms of implementing the SoM curriculum, a curriculum that is geared towards gifted and high-achieving students,

teachers felt like the curriculum moved too fast for some of the learners, particularly older children who needed more time to adapt to a new system. Teachers felt there was not enough time to effectively learn the curriculum as part of the SoM teacher training and expressed wanting more training to help them feel more confident implementing the expectations.

Strained parent-school relationships in racialized and low-income communities are influenced by teachers' "deficit" thinking, shaped by years of marginalization, ineffective policy, high poverty, limited funding, and other stresses that further strain teachers' relationships with families and communities (Flores & Kyere, 2021; Gorski, 2012). Traditionally, the education system situated student difficulty by framing students and their families as lacking some of the academic and cultural resources necessary to succeed in society (Smit, 2012). This is deficit thinking, which focuses on student shortcomings from a stereotypical lens, and does not examine lack of access to opportunities as a driving force behind such shortcomings. Furthermore, deficit thinking ignores the role of institutional racism and other systemic barriers impacting student learning in schools (Shizha, 2016). Viewing students and parents through a deficit lens perpetuates racist and/or classist stereotypes, and subsequently alienates students from high educational attainment, creating more barriers to achieving a high-quality life and becoming an active community member.

Despite the challenges experienced, intentional partnerships such as the one between YAAACE and Spirit of Math can not only act to mitigate the impact of structural inequities on learners, but position schools at the centre of communities and build community resilience and capacity. Regular participation in after-school programming is associated with improved health outcomes, civic engagement, and occupational attainment later in life (Snellman et al., 2015). Further, research on after-school programming emphasizes the importance of peer

relationships, youth engagement, and leadership, which are all associated with positive developmental outcomes (Dawes et al., 2017; Hurd & Deutsch, 2017). When after-school science, technology, engineering, arts, and math (STEAM) programs are embedded in community schools, and affordable and accessible to community members, they can promote upward mobility for families and students. This is essential for promoting safer communities and robust societies (Duodu et al., 2017). Schools that implement supplementary educational programs in ways that are affordable and accessible have been able to narrow the opportunity gap significantly, leading to positive outcomes for the students, families, and the larger community they are situated within (Reich et al., 2020).

Conclusion and Next Steps

In conclusion, the CSI was effective in delivering a structured community-based program during the COVID-19 pandemic aimed at mitigating the opportunity gap for racialized youth from low-socioeconomic status who may not have been afforded the opportunity to participate in a program due to costs and structural inequities. It did this by delivering the structural math curriculum through culturally relevant and responsive pedagogy along with cross-professional teams to create continuity of care for students, particularly on evenings and weekends. Further research on the effective implementation of teaching and learning strategies is needed as the effects of the pandemic on students, families, and communities continue to emerge.

A number of limitations may be associated with this study. First, many parents and students did not complete the survey sent out by the research team. This could be due to competing priorities that were more important for parents and students during the pandemic. Second, self-report surveys are subject to biases where subjects may rate their experience more positive due to it being more socially acceptable. These one-time measures may also be

influenced by external factors such as where the survey was completed and how their experience was at that moment. In the future, having pre- and post-survey responses from students and families to compare experiences before participating in the program would be beneficial to attribute skills, impact, and personal attributes (e.g., confidence in math) more strongly to the program. Second, for a more integrative account of the program, coaches, the program director, SoM strategists, and support workers could be asked to provide their experiences of the program. This would help form a more holistic account of the benefits and challenges as each role interacts with students in a different capacity. This may contribute to understanding the program better and identifying ways to strengthen it.

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Appendix A*: Characteristics of Parents who Completed the Survey (n = 33)*

Characteristics		Number
Race		
	Black	24
	Pilipino	1
	Mixed	5
	Other	3
Individual Education Plan (student identified with an exceptionality & requiring additional supports by their school)		
	Yes	7
	No	26
Housing Status		
	Own	14
	Rent	17
	Subsidized housing	2
Setting		
	Apartment	11
	Condo	2
	Townhouse/detached	20
Who lives		
	2-Parent	16
	Single Parent	15
	Other	2
Education		
	< Grade 12	0
	High school	2
	College	17
	Undergraduate	7
	Graduate	4
	Other	
Access to personal computer		
	Always	24
	Often	2
	Sometimes	5
	Rarely	2
	Never	0
What delivery methods for your child needs		
	In-person	20
	Online	0
	Hybrid	10
	Unsure	1
How often do you communicate with teachers		
	Always	4
	Often	5
	Sometimes	17
	Rarely	6
	Never	1

Appendix B: *Characteristics of Educators Who Completed the Survey (n = 4)*

Characteristics		Educators (n = 4)
Age		39 (8.4)
Ethnicity		
	Black	3
	South Asian	1
Years of experience		11 (4.9)
Years at YAAACE		9 (4.9)
Educator felt supported (on a scale of 1 to 10)		8.25 (0.4)
Educators felt connected to parents/caregivers (on a scale of 1 to 10)		7.25 (1.1)
Educators felt coach had positive influence ((on a scale of 1 to 10))		7.25 (4.2)

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