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Volume 25 Issue 1

Conditions Influencing Learning and Teaching:
Country Based Investigations and Reflections



WEBER STATE UNIVERSITY
Moyes College of Education



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Conditions Influencing Learning and Teaching:
Country Based Investigations and Reflections

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JOURNAL OF THE INTERNATIONAL SOCIETY FOR TEACHER EDUCATION

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From the editors – About this issue

By Karen Bjerg Petersen, David Byrd and DeeDee Mower, Editors of JISTE

The world - including academics and educators - have been facing numerous challenges because of the impact of the pandemic Covid19 and multiple variants in the past year. We are; therefore, even more pleased to present the current issue of the *Journal of the International Society for Teacher Education, JISTE*, Volume 25, number 1. This volume is an open issue and includes articles from scholars in- and outside the International Society for Teacher Education (ISfTE).

JISTE 25.1 is featuring the theme “Conditions Influencing Learning and Teaching: Country based Investigations and Reflections”. The authors represent a diversity of scholars from four continents interested in investigating a variety of conditions that may influence students’ learning and achievement. Although the conditions for learning and teaching in the countries differ, the authors are united in a curiosity about how conditions for learning can be enhanced be it in Bhutan, Nigeria, Scandinavia or Canada.

Kristine E. Illøkken, Nina Cecilie Øverby, Berit Johannessen and Frøydis Nordgård Vik from Norway are interested in the impact of free school meals on students. In the article, “Possible Effects of a Free School Meal on School Environment: The School Meal Intervention in Norway,” they describe a study in which they wanted to investigate whether free school meals had effects on behavioral issues, inactiveness, self-efficacy, school enjoyment and classroom environment. Their research however indicates that evaluating free school meals is a very “complex issue.”

Adedeji Tella and Felicia Motunrayo Fatoki from Nigeria are curious about whether a game-based approach to learning and teaching, in particular the Bingo game, can enhance student achievement in maths. The article, “Effect of Bingo Game Instructional Strategy on Pupils’ Achievement in Mathematics in Public Primary Schools in Oyo State, Nigeria,” is a report on their investigations. They find that a Bingo game instructional strategy improved pupils’ achievement in mathematics and therefore encourage primary school mathematics teachers to adopt this strategy in their teaching.

From Bhutan, the high school teachers Prem Prasad Timsina, Ugyen Tshewang, Nima Tshering, Rinchen Sherab, Karma Dawa, Tshering Dorji and Phurba Tashi are investigating how particular learning styles might help enhance student learning. In their article, “Preferred Learning Style of Students of Nangkor Central School, Bhutan,” they present a study applying visual, aural, read or write and kinesthetic learning styles (VARK) on high school students. They find that the most

preferred learning styles are aural (A) and kinaesthetic (K) and recommend using teaching pedagogy supporting conceptual understanding of “aural and kinesthetic learners.”

In the article, “Reflections on Place, Place-Based Education and Wild Pedagogies in Denmark: a Schooner Project,” Karen Bjerg Petersen investigates places and nature as conditions for learning. She presents findings from a project for underserved young people and students being enrolled as crewmembers at a schooner. The results indicate that place, nature, an extended stay and the relationship competency of the crew are factors that can have a positive and transformative impact on participants, supporting their efforts to get ‘on keel.’

Finally, Karen Julien from Canada shares her personal reflections about online teaching during the Covid19 pandemic. In her “Personal Reflection Paper: Learning to Teach in Higher Education in Canada. Online... During a Pandemic,” she shares her experiences and thoughts about challenges and efforts in online teaching during the pandemic. Among other things, she suggests trauma-informed pedagogy, which recognizes the effects of stress on the body and brain and the effects of emotions on learning, as a tool for helping “our students, and ourselves” in creating successful learning experiences.

The articles in this issue of *JISTE* evidence how teachers, educators and researchers are interested in investigating not only teaching and learning but also the many various conditions and contexts that influence learning and teaching.

Finally, we would like to thank the reviewers, who have contributed with several and repeated reviews on the submitted articles for this issue. We are grateful for the active support from scholars from all over the world, members and non-members of ISfTE, who have spent their time and used their expertise to review the manuscripts.

Personal statement from the editor

June 2021

JISTE 25.1. will be my last issue as editor of the *Journal of the International Society for Teacher Education (JISTE)*. During my years as the editor, we have successfully published two journal issues annually. Over the years, many members of ISfTE have contributed to the comprehensive and time-intensive work needed to publish *JISTE* consistently.

First, I would like to thank the members of *JISTE*'s Editorial Board, who have contributed ideas, expertise and hours of their time for many years. The Editorial Board plays an important role in how we carry out our work producing an international journal.

Secondly, the ISfTE Board, former and the current Secretary Generals are very important to the journal as discussion and decision partners. They have contributed valuable input into the work of the journal and provided the support needed for the success of the journal.

Thirdly, I would like to thank the individuals who have willingly reviewed the submitted articles and made it possible for us to keep a high international standard for the journal.

The associate editors are crucial for the success of *JISTE*. I would like to thank the former associate editor of *JISTE*, Peggy Saunders from Weber State University, USA, with whom I have worked for many years. Over the years, Peggy, with her tireless work as English editor, APA specialist, and final editing of the journal has helped maintain the high standard of the journal. Peggy is moving into a well-deserved retirement from her academic position. I wish her the best!

I want to thank Leanne Taylor and Vera Woloshyn, Brock University, Canada, who also served as associate editors for a number of years. They contributed greatly to the process of publishing the submissions received during their term. And, lastly, my thanks go to the current associate editors, David Byrd and DeeDee Mover, both from Weber State University, USA. As we all know, the time intensive and editorial work of the associate editors is essential to the success of the journal.

To conclude, I would like to wish Leanne Taylor from Brock University, Canada good luck with her job as the next editor of *JISTE*. I am very pleased that Leanne has agreed to step into the position. She has the background and experience to take up the role as Editor. I am confident that Leanne will fill the position with great professionalism and commitment.

Sincerely,

Karen Bjerg Petersen
Aarhus University, Denmark

Possible Effects of a Free School Meal on School Environment: The School Meal Intervention in Norway

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Abstract

Evidence suggests that a free school meal can improve children and adolescent diet, social environment, concentration, and school performance. This study aimed to investigate possible effects of a free, healthy school meal among students that usually eat packed meals on behavioral issues, inactiveness, self-efficacy, school enjoyment and classroom environment. A school meal according to the dietary guidelines was served to students in the intervention group (n=55) for one year. A control group consumed packed meals as usual (n=109). Students (10-12 years) responded to a questionnaire at baseline and after one year. We used linear regression analyses and did not find significant effects of a free school meal on behavioral issues ($B = 0.01$, $p = 0.86$), inactiveness ($B = -0.05$, $p = 0.51$), self-efficacy ($B = -0.04$, $p = 0.52$), school enjoyment ($B = 0.11$, $p = 0.19$) or classroom environment ($B = -0.07$, $p = 0.26$). Methodological limitations might explain our lack of findings.

Keywords: Free school meal, school lunch, behavior, inactiveness, self-efficacy, school enjoyment, Norway, intervention

Background

A healthy nutritious diet as an integrated element of a healthy lifestyle provides optimal conditions for brain development, cognition and learning (Naveed, Lakka, & Haapala, 2020). In particular, a high intake of fish, fruit and vegetables is associated with improved academic achievement during childhood (Naveed et al., 2020). Healthy school meals are seen as important investments in children's wellbeing and for the future, as it provides an opportunity for social interaction and helps prepare them for the rest of the school day (Sarlio-Lähteenkorva & Manninen, 2010). The school meal offers a break from the formal

school day, and a setting where social bonds can strengthen, through a sense of commonality and through talking with and caring for each other (Fossgard, Wergedahl, Bjorkkjaer, & Holthe, 2018; Neely, Walton, & Stephens, 2014). A healthy meal environment can also improve student alertness at school (Golley et al., 2010).

There are no universal free school meals in Norway, and less than 10% of schools from 1st-10th grade have local arrangements for parent-paid school meals (breakfast and lunch)(Federici et al., 2017). Most students in Norway (96%) attend public schools (Statistics Norway, 2020). Public schools therefore constitute a setting where all children and adolescents regardless of social background and life circumstances, can be reached (Kairiene & Sprindziunas, 2016). Meals eaten at school during lunchtime constitute 23-29% of students total dietary intake (TDI), whereas if both breakfast and lunch are provided at school, this may contribute to nearly 50% of their TDI (Colombo, Patterson, Elinder, & Lindroos, 2020; Cullen & Chen, 2017; Prynne et al., 2013; Sanigorski, Bell, Kremer, & Swinburn, 2005).

Traditionally, Norwegian children and adolescents bring packed lunches from home. Like many other students from high income countries without provided school meals, parents/caretakers are responsible for providing school meals, resulting in varying nutritional quality (Evans, Cleghorn, Greenwood, & Cade, 2010; Prynne et al., 2013; Sanigorski et al., 2005). In a systematic review, Mekonnen et al. (2020) showed that self-efficacy, food preferences, knowledge, availability and accessibility at home, food rules and parental modeling are important mediating factors for socio-economic differences in youths' diet. Thus, the home environment is important for children's dietary behavior. Furthermore, a more favorable dietary pattern is seen among youth with higher educated parents; they consume more fruit and vegetables, and less sugar-sweetened beverages and energy dense food (Desbouys, Méjean, De Henauw, & Castetbon, 2020).

In Sweden, the national free school meal makes an important contribution to student diet with higher nutrient density compared to meals consumed outside school. This was particularly important for students with lower socio-economic status (SES) as the free meal at school compensated for a lower dietary quality at home (Colombo et al., 2020). Recently, Lundborg et al. (2021) documented that exposure to the Swedish school meal during school children's entire period in primary school had long-term positive effects on lifetime income, with greater effect among low SES households (Lundborg, Rooth, & Alex-Petersen, 2021).

In Norway, a study showed that serving a free school meal for one year increased students intake of healthy foods, particularly among students with lower socio-economic status (SES) and thereby suggested that free school meals may be an approach to reduce health inequalities (Vik, Van Lippevelde, & Øverby, 2019). However, these social and cultural differences do not only impact student dietary habits. A Norwegian report (The Church City Mission, 2019) triggered a public debate in the media, as it revealed that there is a stigma and a social divide related to packed school meals. Young people living in poverty during childhood experienced the school meal situation as something they were ashamed over because they did not have a packed meal with them; or they had packed meals that negatively stood out compared to 'normal' packed meals (The Church City Mission, 2019).

This corresponds to previous research suggesting that providing a free school meal only to students from disadvantaged families may generate stigma and segregation (Kairiene & Sprindziunas, 2016; Yu, Lim, & Kelly, 2019). As universal free school meals represent a great potential for benefits on several domains of childhood development, such as their social climate and well-being (Taylor, Garnett, Horton, & Farineau, 2020), for improved diet (Cohen, Hecht, McLoughlin, Turner, & Schwartz, 2021; Evans et al., 2010), academic performance (Cohen et al., 2021) and for reducing social inequalities (Lundborg et al., 2021; Vik, Van Lippevelde, et al., 2019), free school meals represent an important target in public health.

During one school year, students in a Norwegian 6th grade were served a free healthy school meal in a project named ‘The School Meal Project’. The primary outcome of the project was dietary behaviors at school reported elsewhere (Illøkken et al., 2017; Vik, Næss, Heslien, & Øverby, 2019; Vik, Van Lippevelde, et al., 2019). Besides dietary behaviors, students in ‘The School Meal Project’ answered questions related to behavioral aspects of the school day such as behavioral issues, inactiveness in class, self-efficacy, school enjoyment and classroom environment. Thus, we wanted to investigate whether the free school meal had effects on behavioral issues, inactiveness, self-efficacy, school enjoyment and classroom environment as well, defined as school environment in the current study. Further if boys and girls, and students with higher or lower socio-economic status (SES), responded to the intervention in different ways.

The aim of this study was to investigate possible effects of a free, healthy school meal on reducing behavioral issues and inactiveness, increasing self-efficacy and school enjoyment, and improving classroom environment.

Methods

The School Meal Project

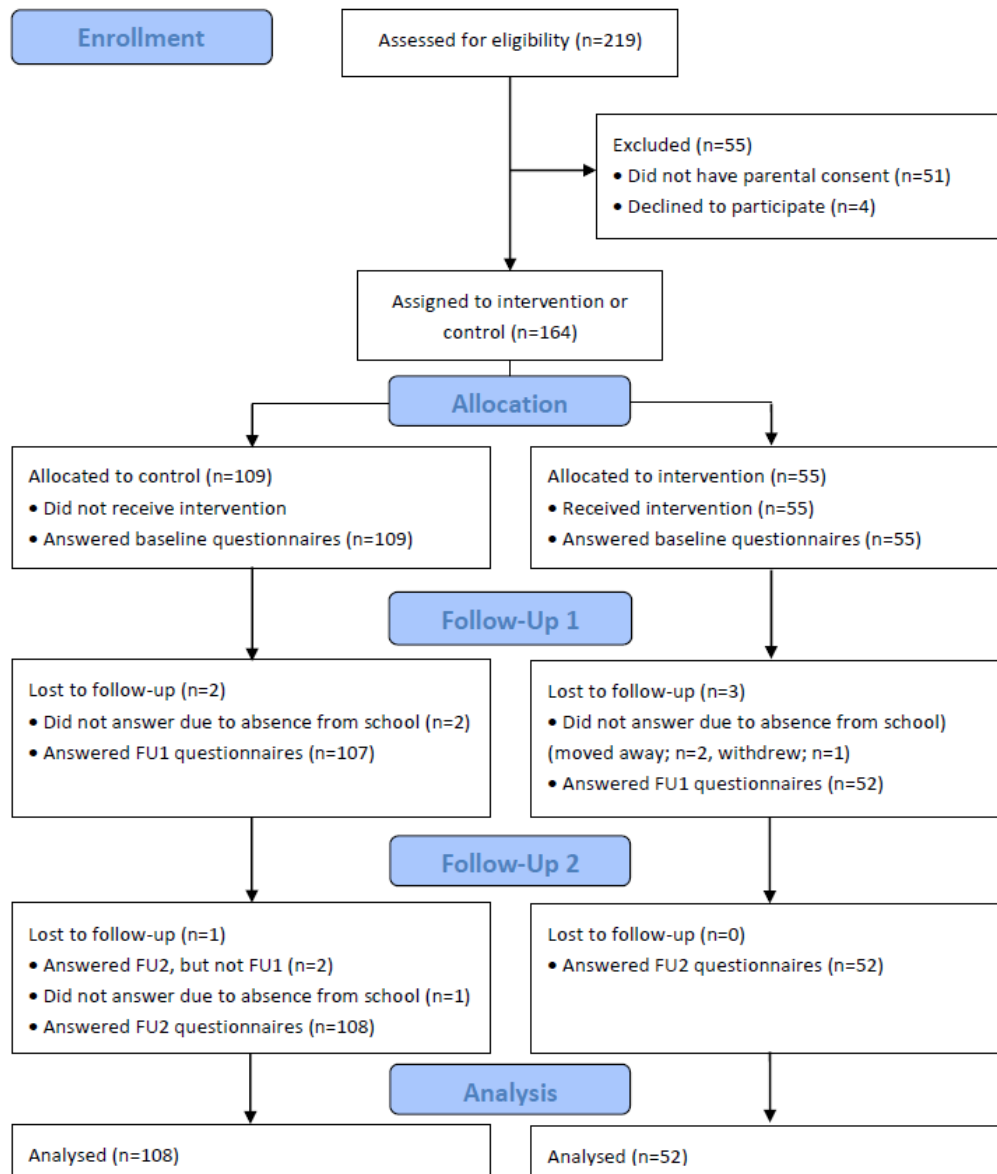
‘The School Meal Project’ was a non-randomized intervention conducted in two elementary schools in Norway. During one school year, Norwegian 6th grade students aged 11 years old (the intervention group) were served a daily free healthy school meal at lunch time (cold meal with bread, healthy spread, fruit and vegetables) according to the Norwegian Dietary Guidelines, while a control group continued with packed meals as usual. The project was initially proposed by a local cook who prepared and served the meal. The research team at the University of Agder designed and carried out the research activities. A convenience sample consisting of one control group (n=109) and one intervention group (n=55) was therefore chosen to make the intervention feasible.

The project had a participation rate of 75 % at baseline; participation rate in intervention group and control group was respectively 96 % and 67 % (Figure 1). Students in both groups answered a comprehensive pen and paper-based questionnaire at baseline (August 2014) and follow-up (June 2015). Consent to participate was gathered by active parental consent following principles from Wolfenden et al. (2009). The students were informed about the possibility to withdraw from the project. The project had few respondents lost to follow-up (n=3 in each group), these were due to absence from school, withdrawal

or moving to another school district (Figure 1). The design and methods have previously been described (Vik, Van Lippevelde, et al., 2019).

Figure 1

Flow chart of the enrollment process (Vik, Van Lippevelde, et al., 2019)



Measures

A likert-scale questionnaire was used to measure our school environment outcome variables: behavioral issues, inactiveness, self-efficacy, school enjoyment and classroom environment. Table 1 presents the survey questions in the questionnaire

Table 1

Survey questions for school environment, main variables indicated in bold.

Behavioral issues
Do you make so much noise in class that the teachers yell at you?
Are you expelled from class because you make too much noise?
Does your teacher write down your name because of bad behavior?
Do you disturb the class to such an extent that other students in your class can't pay attention?
Inactiveness
Do you find it uncomfortable to speak up in class?
Do you raise your hand to answer questions in class? [†]
Do you feel shy in class?
How often does it happen that you haven't said anything in class for one day?
When I have to say something in class, I'm afraid that I will say something stupid
How often do you feel shy in meeting with people of the opposite gender?
Occasionally you do not raise your hand even though you know the answer, because it is uncomfortable to speak up in class
School enjoyment
I like being at school
The school is interesting
I look forward to going to school
I like school activities
We do a lot of fun things at school
I wish I didn't have to go to school [†]
I do not like school activities [†]
I learn a lot at school
It is many things at school which I don't like [†]
The teachers assist me when I need it
Self-efficacy
I can master the subjects that is taught in school this year
I can do even the most demanding work if I try
If I have enough time, I can do a good job with all my schoolwork
I can do almost any schoolwork if I don't give up
I can learn schoolwork although it is demanding
I'm sure that I can figure out how to do the most demanding work
Classroom environment
The students in my class enjoy being together
Most of my fellow students are kind and helpful with each other
My fellow students accept me as I am
When a classmate is upset, the others comfort him / her

[†]reversed item.

Each item had 5 response alternatives ranging from very often, often, sometimes, rarely, to never, except from self-efficacy (responses completely true, true, partly true, untrue and completely untrue) and classroom environment (responses always, often, sometimes, rarely, never). The questionnaire was pilot-tested prior to data collection, and parts of the questionnaire is used in previous research (Øverby & Høigaard, 2012).

Sum- score variables were made for each outcome variable by summarizing the score from each question. Change variables for each outcome variable were made by subtracting follow-up score with baseline values to investigate possible change in the outcome variables.

Parental educational level was reported by parents in a separate questionnaire and used as proxy

for SES. The scores for SES were dichotomized into lower or higher SES based on two items. First “what is your highest level of completed education” and second “what is your partner’s highest level of completed education”? The response options were “primary school”, “upper secondary school”, “3-4 years higher education and “5 or more years of higher education” (and “do not have a partner” for the second item).

Lower SES was identified as both parents (or one single parent) having completed primary school and upper secondary school, and higher SES with at least one parent completed higher education (Vik, Van Lippevelde, et al., 2019).

Statistics

The sum-scores for behavioral issues, inactiveness, self-efficacy, school enjoyment and classroom environment were all found reliable with respectively $\alpha = 0.7, 0.7, 0.9, 0.9$ and 0.8 Cronbach’s alpha values, confirming internal consistency (Bland, 2015). Baseline- and descriptive characteristics are presented as proportion, mean and standard deviation (SD) or median and interquartile range (25%-75%) where appropriate. Preliminary analyses were performed to check that assumptions of normality, linearity, homoscedasticity, and multicollinearity were reasonably met. Linear regression was performed for each of the outcome variables to assess the effect of the free school meal (intervention/control group as the independent variable) on change in the outcome variables behavioral issues, inactiveness, school enjoyment, self-efficacy, and classroom environment. The regression analysis for each of the outcome variables are presented together in the complete regression model (Table 4). The model is adjusted for baseline measures (model 1), adding adjustment for gender in model 2 and adding gender and SES in model 3. Gender and SES were inserted as categorical variables (0= girl, 1=boy, SES:0=lower, 1=higher), while the change variable and baseline sum-score were indexed as continuous variables. Analyses were performed using IBM® SPSS® Statistics 25.

Results

Out of 219 invited students, 164 (74%) gave consent and participated at baseline. There were more boys in the intervention group compared to the control group ($p = 0.07$), and there were higher educated parents in the control group compared to the intervention group ($p = 0.23$) (Table 2).

Table 2

Baseline demographic characteristics (n=164)

Characteristics	All	Intervention group (n=55)	Control Group (n=109)	Group comparison
<i>Gender, n (%)</i>				
Boys	85 (52)	34 (62)	51 (47)	<i>p</i> = 0.007
Girls	79 (48)	21 (38)	58 (53)	
<i>Age</i>				
Mean (SD)	11.00 (0.78)	11.10 (0.32)	11.14 (0.92)	<i>p</i> = 0.86
<i>SES, n (%)</i>				
Lower	53 (39)	21 (46)	32 (35)	<i>p</i> = 0.23
Higher	63 (41)	25 (48)	38 (38)	

Pearson's chi square for gender and SES (socio-economic status). Independent sample t-test for age.

The intervention- and the control group were comparable with regards to behavioral issues, inactiveness in class, self-efficacy and classroom environment at baseline and follow-up (Table 3). There was a significant change in school enjoyment in favor of the intervention group at follow-up (p 0.04). This change was not adjusted for baseline (Table 3). Analysis adjusting for baseline presented in Table 4 did not show significant effects of free school meals on reduced behavioral issues or inactiveness, increased school enjoyment or self-efficacy or improved classroom environment. Overall, the analysis showed wide confidence intervals (Table 4). Furthermore, not related to intervention effect, analysis showed that girls reduced their inactiveness in class more than boys ($B = -0.21$, p 0.02), and that there was a significant change in self-efficacy according to SES: students with higher educated parents increased their self-efficacy more compared to students with lower educated parents ($B = 0.20$, $p < 0.01$).

Table 3 Descriptive scores for outcome variables as md (IQR) and mean (SD) for change

Outcome variables	Baseline			Follow-up			Change		
	Inter- vention	Control	P- value *	Inter- vention	Control	P- value *	Inter- vention	Control	P- value**
Behavior	5 (4,7)	5 (4,6)	0.36	5 (4,7)	5 (4,6)	0.12	-0.08 (1.1)	0.00 (1.1)	0.68
Inactiveness	13 (10,16)	12 (10,15)	0.83	12 (9,15)	12 (9,16)	0.74	-0.29 (4.3)	0.22 (4.0)	0.49
Self-efficacy	22 (20,26)	24 (19,27)	0.11	24 (23,26)	24 (22,28)	0.33	1.13 (3.6)	1.21 (4.5)	0.92
School enjoyment	36 (30,41)	40 (35,44)	0.27	38 (33,44)	39 (33,39)	0.08	0.91 (5.9)	-1.28 (5.7)	0.04
Classroom environment	17 (16,19)	18 (16,19)	0.69	17 (16,18)	18 (16,19)	0.35	-0.14 (1.7)	0.67 (2.9)	0.58

*Pearson's chi square

** Independent samples t-test

Table 4

Effect of a free school meal on change in behavioral issues, inactiveness, school enjoyment, self-efficacy and classroom environment using linear regression

Outcome variables	Model 1		Model 2		Model 3	
	Beta (95%CI)	p-value	Beta (95%CI)	p-value	Beta (95%CI)	p-value
Behavioral issues						
Control/Intervention	0.01 (-0.33-0.39)	0.86	0.02 (-0.33-0.41)	0.84	0.01 (-0.36-0.39)	0.94
Girls/boys			-0.04 (-0.50-0.30)	0.63	-0.04 (-0.48-0.32)	0.69
Lower/Higher SES					-0.13 (-0.65-0.08)	0.12
Inactiveness						
Control/Intervention	-0.05 (-1.87-0.93)	0.51	-0.03 (-1.61-1.17)	0.75	-0.04 (-1.75-1.10)	0.65
Girls/boys			-0.19 (-2.95-(-0.21))	0.03	-0.21 (-3.14(-0.33))	0.02
Lower/Higher SES					-0.16 (-2.73-0.08)	0.07
School enjoyment						
Control/Intervention	0.11 (-0.66-3.35)	0.19	0.11 (-0.65-3.39)	0.18	0.11 (-0.67-3.50)	0.18
Girls/Boys			-0.02 (-2.16-1.64)	0.79	-0.02 (-2.20-1.71)	0.80
Lower/Higher SES					0.05 (-1.32-2.60)	0.52
Self-efficacy						
Control/Intervention	-0.04 (-1.48-0.75)	0.52	-0.05 (-1.58-0.68)	0.43	-0.03 (-1.43-0.83)	0.60
Girls/Boys			0.07 (-0.50-1.64)	0.29	0.07 (-0.49-1.66)	0.28
Lower/Higher SES					0.20 (0.57-2.81)	<0.01
Classroom environment						
Control/Intervention	-0.07 (-1.11-0.29)	0.26	-0.08 (-1.18-0.25)	0.20	-0.08 (-1.15-0.31)	0.26
Girls/Boys			0.07 (-0.29-1.05)	0.26	0.08 (-0.29-1.09)	0.25
Lower/Higher SES					0.09 (-0.20-1.23)	0.16

Significant *p*-values indicated in bold. Dependent variable: Outcome variable. Model 1: Adjusted for baseline. Model 2: Adjusted for baseline and gender. Model 3: Adjusted for baseline, gender, and SES.

Discussion

This study did not demonstrate that a free healthy school meal for one year significantly reduced behavioral issues or inactiveness, increased school enjoyment or self-efficacy, or improved classroom

environment.

Previous research has documented that healthy free school meals following nutritional guidelines can have a positive impact on several aspects in childhood and adolescence (Cohen et al., 2021). These include for instance social benefits, improved social climate, and making students more ready to learn (Taylor et al., 2020). Furthermore, previous research has demonstrated that a free school meal can improve satisfaction with schoolwork (Ask et al., 2010). Benn & Carlsson (2014) showed how a free school meal can be beneficial for concentration and less disturbing noise in class. Berggren et al., (2017) explored how school meals can operate as a positive influence on children and adolescent wellbeing, concentration in school activities and their mood. Moreover, cross-sectional studies have shown an association between sub-optimal energy-dense diets high in sugar and behavior- and mental health problems (Lien, Lien, Heyerdahl, Thoresen, & Bjertness, 2006; Oellingrath, Svendsen, & Hestetun, 2014; Øverby & Høigaard, 2012). However, Sorensen et al. (2015) showed inconsistent findings when investigating effect of free school meals on concentration and school performance, with improved reading performance but also increased inattention and impulsivity. The researchers relate these findings to methodological issues (Sorensen et al., 2015). Given our results as well, this indicates that evaluating free school meals is a complex issue. The lack of effects in the present study could therefore be due to methodological issues. More research is needed with improved study design and methods, as well as a larger study sample.

Given the wide Confidence Intervals we detected in our analyses, the study may be underpowered (Bland, 2015). In our case, this increases the risk of uncertain estimates and thus of the results being false negative. With 55 students in the intervention group, it is likely that we have a too small, and imbalanced (for gender and SES) sample size to show that a difference might exist (Bland, 2015). Furthermore, lack of randomization, as well as using self-reported unvalidated measurement tools and the narrow age-range in our sample limits the representativeness and generalizability of the results.

Significant changes as we found in our analysis for inactiveness between girls and boys, and for self-efficacy between lower and higher parental education status, may indicate that there are different things going on during the school year that we were not able to control for, regardless of receiving free healthy school meals. ‘The School Meal Project’, as this current study was a part of, has previously shown effective in promoting a healthy diet and reducing social health inequalities (Illøkken et al., 2017; Vik, Van Lippevelde, et al., 2019).

The lack of results that a free school meal might influence the school environment might be due to the survey questionnaire being unsuitable for measuring school environments. Therefore, rigorous interventions with a large study sample using a cluster randomized control design and validated measurement tools and a focus on increased understanding through qualitative measures are needed to explore the possible impact of free, healthy school meals on school environment. The long intervention period and high participation rates represents strengths of this study.

Although we did not find significant effects in our current study, others have, as mentioned earlier, showed that free school meals are beneficial for several domains of childhood development. A recent systematic review conducted by Cohen et al. (2021) documented that most studies investigating universal

free school meals at lunch time following nutritional standards can promote a healthy diet, food security and academic performance. Further, as a healthy lifestyle with a healthy diet is associated with optimal learning (Naveed et al., 2020), we argue that school meals are of importance in an educational setting, for teachers and in teacher education as well.

However, Benn & Carlsson (2014) illustrated a potential gap on the view of school meals in their research: they showed that a free school meal can function as a pedagogical platform where children can practice social skills and learn about food, while some teachers viewed school meals as relating to school health policy rather than education and learning (Benn & Carlsson, 2014). Additionally, free school meals can be harmful by creating stigma if not offered as a universal free meal (Kairiene & Sprindziunas, 2016; Yu et al., 2019) and organizational factors such as lack of time, noise, standing in line, and having limited offer of food choice can influence uptake of free school meals and the dining experience (Day, Sahota, Christian, & Cocks, 2015; Sahota, Woodward, Molinari, & Pike, 2014).

It may also be argued that school meals are not necessarily better than a packed lunch from home. A nutritious packed lunch with fruit and vegetables may for instance be a better choice than a free school meal of low quality. Free school meals may also be expensive for the municipalities and introduce logistics that may be challenging for schools that are not built for this purpose. We therefore suggest that future school meal programs and research should consider the limitations with our current study, focus on teacher involvement, implement policy for nutritional guidelines, consider universal free school meals, and further explore best possible local solutions for serving varied types of food and for reducing organizational barriers.

Conclusion

Serving of healthy, free school meals at lunchtime did not reduce behavioral issues or inactiveness in class, increased school enjoyment or self-efficacy, neither did it improve classroom environment in this study. Methodological issues might explain the lack of findings in our study. We encourage further research to enhance the understanding of universal free healthy school meals among different age groups, with a larger study sample, and with study designs involving perspectives of school children, family, staff, and policymakers.

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Effect of Bingo Game Instructional Strategy on Pupils' Achievement in Mathematics in Public Primary Schools in Oyo State, Nigeria

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Abstract

This study determined the effect of Bingo game instructional strategy on Pupils' mathematics Achievements of public primary schools in Oyo state, Nigeria. One hundred and twelve public primary school grade 3 pupils participated in the study. This study adopted the pretest-posttest control group quasi-experimental design with a 2x3 factorial matrix. The study deployed Bingo strategy as different patterns that were designed to create fun and variety in teaching mathematics. The pretest was administered before the teaching using Bingo strategy, while posttest was administered immediately after the treatment (Bingo strategy). The control group were left with conventional teaching without any manipulation. Simple random sampling was used to select four primary schools from two local government area in Oyo State, Nigeria. Two constructed standardized and validated instruments by the researchers were used for the study: Pupils mathematics Achievement Test ($r = 0.81$) and Quantitative Ability Test ($r = 0.69$). The treatment lasted four weeks. The data were analyzed using Analysis of covariance at 0.05 level of significance. The result revealed that there was a significant main effect of Bingo on pupils achievement in mathematics ($F_{(1, 110)} = 3.327$; partial $\eta^2 = 0.131$). There was a significance main effect of quantitative ability ($F_{(1, 110)} = 0.603$; partial $\eta^2 = 0.206$) on pupils achievement in mathematics. The high quantitative ability pupils (56.904) benefited from the treatment package more than their counterpart (31.451). There was significant two-way interaction effect of Bingo game and quantitative ability of the participants ($F_{(2, 106)} = 1.543$; partial $\eta^2 = 0.214$) in favour of high quantitative ability pupils from Bingo game instructional strategy. The participants in Bingo game (14.07) had a higher mean value than their counterparts in the control (6.61). Bingo game instructional strategy improved pupils' achievement in mathematics. Primary school mathematics teachers should try to adopt this strategy in their teaching delivery.

Keywords: Bingo game strategy, Primary grade 3 pupils, mathematics achievement and quantitative ability

Introduction

Mathematics for level 3 pupils involves problem solving in the area of number work known as numeracy such as the measurement of shapes which includes calculating their perimeter, area and volume. It also involves simple calculation with rational numbers using real life problems. The skills acquired through the above concepts are necessary and sufficient in helping students to be successful in everyday math experiences that include accuracy, precision, aptitude, thinking, logic, and reasoning. Mathematics is used throughout the world as an essential tool in many fields including natural science, engineering, medicine, finance and the social sciences. In Nigeria, mathematics is taught from pre-primary school in order to provide the foundation on which later mathematical knowledge is built (Okafor and Anaduaka, 2013). These authors claim that mathematics encourages the habit of self-reliance and assists learners to

think and solve their problems themselves. Mathematics is all around us, in everything we do. It is the building block for everything in our daily lives, including mobile devices, architecture (ancient and modern), art, money, engineering, and even sports. Osokoya (2005) observed that mathematics is the basic science from which fundamental knowledge and understanding of the other sciences is cultivated for any sustainable scientific tradition and technologies development in Nigeria. However, preliminary investigation, by the researchers, revealed that mathematics teachers' inappropriate teaching strategies hindered the teaching and learning of mathematics at the primary school level in Oyo State, Nigeria. They pointed out the attributed problems hindering mathematics teaching and learning in Nigerian schools to teachers' inability to help students learn mathematics in a meaningful way (Adetunji (2000) and Akinsola (1999).

Mass failure in mathematics examination by students in West African Examinations and internal examinations has been traced to many factors. These include lack of adequate teaching materials, poor presentation by teachers, uncooperative attitude of the students and large class size (Ifamuyiwa, 2005). Other reasons are; shortage of qualified mathematics teachers (Akinsola, 2000), shortage of mathematics textbooks (Onabanjo, 2004) to mention but a few. From the aforementioned reasons, West African Examination Council (WAEC) Chief Examiner's Report (2015) suggested that students' performance in mathematics could be improved through designing a meaningful and innovative teaching strategy. According to the report, teachers should help students develop interest in mathematics by reducing the abstractness of mathematics, and hence remove their apathy and fears in the subject.

From the early years' past, children at the primary school level have been learning through many methods and techniques (Shofoyeke, 2012). Awofala, Fatade & Ola-Oluwa (2012) also asserted that teachers should endeavour to adopt a variety of appropriate strategies to teaching pupils mathematics in classroom. Some of these strategies include using diagrams, looking for patterns, listing all possibilities, trying special values or cases, working backward, guessing and checking, creating an equivalent problem and creating a simpler problem. Mustafa, Khan & Ullah (2011) and Haramati (2000) expressed active learning in which Bingo game instructional strategy is one of the strategies that creates joy, excitement, and love for learning which gaming often creates.

Akinboye (1996) expressed that learning involves acquisition of better ways of doing things through changes in behaviour that results from real-life experiences. This real learning must involve both teacher and learner in order to enhance effective learning. Thus, it becomes pertinent to look for strategies that could be used in order to effectively have higher mathematics learning outcomes in order to eradicate the problems of teaching and learning of mathematics in the past in primary schools. This study is anchored to Game Theory to teach the concepts of length, perimeter, shapes and figures through gaming. Game theory has been applied to contexts in business, biology, physics, chemistry, and other disciplines. Based on this, the Bingo game instructional strategy has been identified through the literature as a promising strategy to teach pupils mathematics (Coco, Woodward, Shaw, Cody, Lupton and Peake, 2001; Pulos & Sneider, 1994).

Mathematics games have been detected to be one of the learning strategies that enable pupils to

learn mathematics without stress. Obodo (1997) described mathematics games as activity in the form of puzzles, magic tricks, fallacies, paradoxes or any type of mathematics which provides amusement or curiosity and stimulates mathematics thinking, excitement in the spirit of competition and cooperation. Also, games enable interest of students to be aroused towards the learning of the subject. Several researchers such as Coco, Woodward, Shaw, Cody, Lupton and Peake, 2001 have attested to the effects of use of games instructional strategy in achieving instructional objectives at the primary and secondary school levels. Corti (2006) expressed that games engage people psychologically, physiologically and emotionally. He further added that games help to create and provide an environment for the users to learn the process of explanation, description, construction, assessment and the evaluation of advanced problems solving skills. In its own view, the National Council of Teachers of mathematics (NCTM, 2007) state that game is an aspect of mathematics used in developing the four thinking mathematics standards: problem solving, communication, reasoning and connections. These skills are needed most in real life. Furthermore, instructional games create a new learning culture that better corresponds with “pupils’ habits and interests (Prensky, 2001). Mustafa, Khan, and Ullah (2011) expressed active learning as the creation of joy, excitement, and love for learning which are created through games. Mansureh, Atsusi and Haiyan (2010), submitted that instructional games are thought to be effective tools for teaching difficult and complex procedures because they use action instead of explanation, create personal motivation and satisfaction, accommodate multiple learning styles and skills, reinforce mastery skills and provide interactive and decision-making contexts (Charles and McAlister, 2004; Holland, Jenkins and Squire, 2002). Mathematical games which can also be called educational games have been defined as an enjoyable social activity with goals, rules, and educational objectives (Stephen and Cary, 1994). Learning through games also provides immediate feedback to pupils. While learning games, the content can be taught and rehearsed, a positive atmosphere can be created and social interactions can be promoted in the classroom (Pehkonen, 1993). Games support many of the components of flow such as clear goals, direct and immediate feedback, balance between ability level and challenge, and sense of control. These components can increase student engagement, and student engagement is strongly associated with student achievement (Shute, Ventura, Bauer and Zapata-Rivera, 2009). Games contain the pieces necessary to engage students and help them enter a state of flow (Csikszentmihalyi, 1990) where they are fully immersed in their learning environment and energized and focused on the activity they are involved in. Ke and Grabowski (2007) in their study on “Gameplaying for mathematics learning: Cooperative or not?” found results that “students who played games had a better mathematics performance than those who received paper-based drills”.

Bingo game instructional strategy is description where all of the possible Bingo numbers are displayed on an electronic reader board in the Bingo game room. At the beginning of each game, an electronic random number generator selects a predetermine groups of Bingo numbers to be blue, green and red numbers. All of the other remaining numbers are yellow numbers for that particular game of Bingo. When a player achieves a Bingo, the player wins certain pre-established payout depending upon whether the player has an all “blue” Bingo, and all “green” Bingo, and all “red” Bingo and all “yellow” Bingo or

any other Bingo (which would be a “mix” colour Bingo). The “all blue” Bingo receives the highest payout, the “all green” Bingo receives the next highest payout, the “all red” Bingo receives the next highest payout, the all “yellow” receives the next highest payout and the smallest payout is awarded to a regular “mix” colour Bingo. Therefore, a Bingo game enables pupils to develop cognitive skills such as analytical, aptitude, and problem-solving. This could be possible owing to the development of aptitude skill, computational skill, and mathematical ability that can be enhanced during the teaching and learning of mathematics using Bingo game. It also promotes the spirit of sportsmanship as neither a loser or winner during its deployment. What is paramount in using it is simply to gain knowledge.

Apart from innovative strategy such as Bingo game in teaching pupils’ mathematics, other variables such as quantitative ability, gender, socio-economic factor, personality traits, among others, often intervene the traditional teaching and learning of mathematics. Bingo overcomes these factors to ensure that real learning can take place for all.

This study then considered quantitative ability as a moderating variable interacting between the intervention and dependent variable. Quantitative ability can be expressed as the ability to solve numerical and mathematical calculation accurately and as quick as possible. It has to do with executing tasks which are related to manipulation of figures or handling of numbers. The quantitative aptitude test measures the numerical ability and accuracy in mathematical calculations. Adu, Ojelabi & Adeyanju (2009) describe quantitative ability as the ability to execute tasks which are related to the handling of numbers. Some of its synonyms are numerical ability, numerical aptitude, mathematical ability and figural ability mathematical skill.

Game instructional strategy has been steadily growing for the past several years. There is a growing interest in gaming in classroom to engage students (Vlachopoulos & Makri, 2017). Muzzy Lane Software Company (2002) was one of the pioneers of Game Based Learning who expressed that well designed games with education experiences are challenging but achievable. Games should present players with challenges that are matched to their skill level in order to maximize the impact of educational games (Kiili, 2005).

In an educational game, however, the price of failure is lower (Gee, 2005). Students can take risks and quickly learn from their mistakes. Effective games provide feedback that is “(1) clear and unobtrusive, and (2) immediately responsive to the player’s actions” (Rigby and Ryan, 2007, p. 8). The feedback also helps reinforce motivation (Jones and Issroff, 2005). Students are able to adapt to the feedback, and the game continues to adapt to the student. In order to really evaluate the efficacy of games, researchers need to consider more nuanced features such as the length of game play and the content, structure, and mechanics of the games (Khoo and Gentile, 2005).

Mathematics competence at the primary and secondary levels is a critical determinant of post-secondary education and career choices. Over the years, pupils’ mathematics achievements from the primary school level have not been encouraging due to teachers’ uses of ineffective methods (Akinsola & Tella, 2003). Appropriate use of relevant instructional strategies in the delivery of mathematics instructions and developing pupils’ attitudes positively towards it from early primary school classes are the solutions

to this problem. In addition to various instructional strategies and appropriate uses of instructional materials, the use of games instructional strategy also needs to be adopted to replace the conventional instructions in order that the pupils could enjoy effective delivery of relevant skills in mathematics. Hence this study determines the effects of Bingo game instructional strategy on pupils' achievement in mathematics in public primary schools in Oyo state, Nigeria with the view to enhance and promote pupils' understanding, comprehension and assimilation of length, perimeter, shapes and figures. The moderating effects of quantitative ability were also examined

Objectives of the study

Specifically, the study determined the effect of Bingo game instructional strategy on pupils' mathematics achievement in public primary schools, Oyo state. The study also examined the moderating effect of quantitative ability on the dependent variable. The quantitative ability as one among many extraneous variables (gender, school type, self-concept, attitude) became necessary to examine its effect on pupils' achievement base on its strength as reviewed by empirical findings (Adu et al., 2009).

From the stated objectives of the study, the following research questions were raised:

1. What is the difference between Bingo game instructional strategy group and the conventional strategy group (control) in terms of pupils' achievement in length, perimeter, shapes and figures?
2. What is the difference between pupils that were exposed to Bingo game instructional strategy and conventional strategy group (control) in terms of pupils' quantitative ability?
3. What is the interaction effect of Bingo game instructional strategy and quantitative ability on pupils' achievement in length, perimeter, shapes and figures?

Hypotheses

H₀₁: There is no significant main effect Bingo game instructional strategy on pupils' achievement in mathematics

H₀₂: There is no significance main effect of quantitative ability on pupils' achievement in mathematics

H₀₃: There is no significance two-way interaction effect of Bingo game instructional strategy and quantitative ability on pupils' achievement in mathematics

Methodology

Bingo game is a mathematical game that helps pupils to improve their cognition skills. The figures and the expressions below are written on a big cardboard. Small cards were distributed to each pupil in the group except the leader. The fastest pupils place the card on the square box. The first pupil to place the small squares on a row, a column or a diagonal is called the winner and the pupils in the group shout BINGOOO!!! Meaning that, that pupil is the winner in the group he or she belongs to.

The study adopted the pretest – posttest control group quasi-experimental design with a 2x3 factorial matrix. The pretest was administered before the teaching using Bingo strategy, while posttest was

administered immediately after the treatment (Bingo strategy). The control group were left with conventional teaching without any manipulation. The row consisted of Bingo game instructional strategy and conventional method (control group), that is teaching without using Bingo game) respectively. The row was crossed with quantitative ability (the ability to solve numerical and mathematical calculation accurately and as quick as possible) varied at three levels (high, medium and low). One hundred twelve participants were public primary level three pupils randomly drawn from four public primary schools in Akinyele and Ibadan North-East local government areas of Oyo state during the 2016 academic session. Two schools each were assigned to experimental groups and two schools each were assigned to control groups respectively. The participants consisted of pupils who had consistent school records of low mathematics achievement for two terms. Out of these 112 participants, 36 (32.1%) were males while 76 (67.9%) were females. The mean age of the participants was 5.37 ± 1.50 Standard Deviation. Pupils' mathematics Achievement Test (PMAT) and Quantitative Ability Test (QAT) were used to collect data.

Pupils Mathematics Achievement Test (PMAT)

- The PMAT was developed by researchers in form of a multiple-choice test for primary level three pupils' mathematics curriculum and scheme of work. The test consists of two sections. Section A is designed for personal data of the pupils. Section B consists of 20 multiple choice questions with an objective test format. PMAT was developed to measure the pupils' acquisition level in length of objects/shapes and distances and perimeter of plane shapes like notebooks, pupils' desks, classroom doors and windows. All the questions are to be answered by the participants within an hour. Example of the items in the Test was: 1) 2m 53cm is equal to ____ cm; 2) 2 rectangles; 3) $132\text{cm} = \dots\dots\text{m}.\dots\dots\text{cm}$; 4) A square. The difficulty index is used in this context as the probability that pupils will answer a test correctly, generally more difficult items have a low percentage or p-value, while discriminative index is the basic measure of the validity of items. Is a measure of an item's ability to discriminates between people which scored high on the total test of PMAT and those who score low of 0.53 and the discrimination index of 0.70 were obtained while the Kuder-Richardson formula 20 was used to measure the internal consistency and 0.81 was obtained.

Quantitative Ability Test (QAT)

It is a multiple-choice objective test which consists of 20 items. The instrument was designed by the researchers in relation to the content of the study to assess pupils' quantitative ability based on the existing similar test. However, its psychometric property was duly established through validity, reliability, score ability, and suitability. This was made up of 20 multiple choice items with four options (A-D). The face and content validation reduced the items from 30 to 20 after giving the test to three teachers in primary schools for scrutiny. Kuder-Richardson formula 20 was used to measure the internal consistency and coefficient of 0.69 was obtained. Example of the items in the Test were: which of these numbers is even:

1,2,3,4,5,6,7,8,9,0?; simplify; $\frac{2}{5}$ of 35 ; I have fifty naira, I bought two rulers that cost six naira each.

How much do I have left?

Treatment Procedures

Experimental Group: Bingo Game Instructional Strategy Guide.

After the topic (length and perimeter of shapes) was taught in the selected schools, then the game was played by the pupils in the two schools used for treatment (experimental). The figures and question as shown on pages 10 -11 was written and drawn on small cardboards each. These were kept inside a carton. Then the solution to each of those questions were drawn on the big cardboard or written on the bid cardboard. The pupils are divided into groups with one group leader each. Each of the members in the group was given a small piece of card to hold. the group leader then pick a question and show it to members of his/her group so that the first pupil to know the correct answer will place it, on the cardboard being held, on the portion that had the correct answer and the group leader will shout BINGO!!!!. This will continue until all the members of the group had played the game round. Each of the groups play the game at the same time and pace until the class teacher or research assistants stop them. This is a further explanation of how the game was prepared and played:

1. The figures and the expressions below are written on a big cardboard.
2. Small cards were distributed to each pupil in the group except the leader. The fastest pupils place the card on the square box. The first pupil to place the small squares on a row, a column or a diagonal is called the group leader of the winner group shout BINGOOO!!! Meaning that, that pupil is the winner in the group he or she belongs to.
3. The game will then be restarted by choosing another leader for each group.

Pupils were left to play the game in groups while the teachers only ensure orderliness of pupils in playing the game.

Bingo Game Instructional Strategy Lesson Notes.

Lesson notes on the topic (length and perimeter of shapes) to be used for the study by the researchers. The lesson notes for the experimental group contains instructional materials showing shapes like rectangles, triangles and squares of different dimensions. Teacher also demonstrated uses of rulers to measure lengths and perimeter of shapes. After this Bingo game was played using (mathematics) games material as previously discussed.

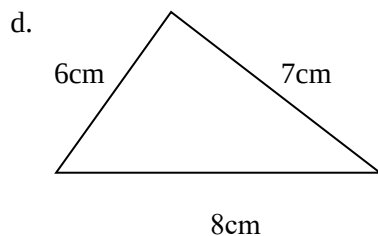
The topic was introduced to the class teachers in the schools selected. Two days were used for distributing the games materials and training the class teachers as research assistants/facilitators on the game procedures in the selected schools and two days were used for ensuring understanding of the games for the classroom teachers (as contained in the Bingo game instructional strategy guide, while the implementation is contained in the activity 1). The pupils in this group were taught measurement of length and perimeter of shapes using conventional instruction for three days and the fourth day was used for summary and evaluation.

The fifth day, the class teacher introduced to their pupils how to play the game. The teachers played the game with the whole class first. Then the pupils were divided into groups of six pupils per group. After this the pupils were allowed to choose a leader for each of their groups.

Activity 1:

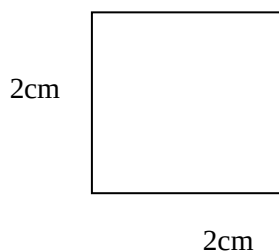
1. The figures and the expressions below are written on a big cardboard.
2. Small cards were distributed to each pupil in the group except the leader. The fastest pupils place the card on the square box. The first pupil to place the small squares on a row, a column or a diagonal is called the winner and the pupils in the group shout BINGOOO!!! Meaning that, that pupil is the winner in the group he or she belongs to.
3. The game will then be restarted by choosing another leader for each group.
4. The following cards were put in a box.

- a. A square $132\text{cm} = \dots\dots\text{m}.\dots\dots\text{cm}$
- b. A rectangle
- c. 3 triangles



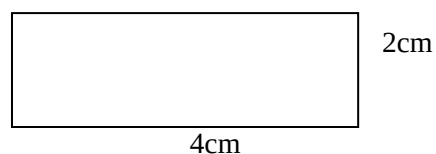
Perimeter = $\dots\dots\text{cm}$

- e. A triangle
- f. 2 Rectangles $2\text{m } 53\text{ cm} = \dots\dots\dots\text{cm}$
- g. Square



Perimeter = $\dots\dots\text{cm}$

- h. Rectangle



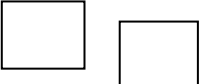
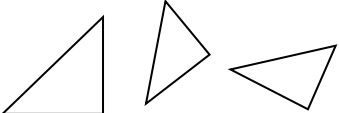
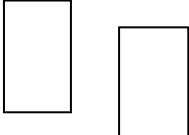
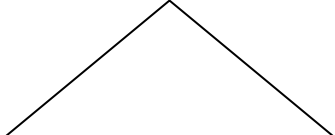
Perimeter = $\dots\dots\text{cm}$

Each of these statements (itemized above) and drawings were placed inside a box, while each group leader picked them out one by one and read whatever is written there. Smaller square cards which had already been distributed to each pupil in the group are then picked by any pupil who recognized the position that matched the statement or diagram shown to the group members by the group leader.

Pupils were left to play the game in groups, while the teachers and research assistants only ensure orderliness of pupils in playing the game. Posttest questions were administered after the pupils in the two schools used for experimental groups were taught the game and were left to play the game at their own pace. This is what the board looked like while the students were playing.

Figure 1

Example of what the board looked like while students were playing Bingo

	1m 32cm	
		Perimeter = 12cm
	253cm	
		Perimeter = 21cm
Perimeter = 8cm		
		

Note: Students were already placed in groups.

Conventional strategy

Conventional strategy was observed as control group for this study whereby the pupils in the group were not taught using Bingo game on the teaching of length, and perimeter of shapes, and figure.

Methods of Data Analysis

The data were analyzed using Analysis of Covariance (ANCOVA) with the pretest scores used as covariates. The Estimated Marginal Mean (EMM) was used to determine the magnitude of the mean scores of the different groups at 0.05 level of significance. The study lasted five weeks, while the treatment lasted four weeks and the administration of pretest and training of research assistants takes one week. Each of the research assistant taught concurrently at their various school (location). The researchers only move round to supervise the research assistants for doing the right thing.

Results

Table 1

Summary of 2x3 Analysis of Covariance Posttest Mathematics Achievement by Treatment by Quantitative Ability.

Source	Type III Sum of squares	df	Mean Square	F	Sig.	Partial Squared	Eta
Corrected Model	3159.376 ^a	6	526.563	3.190	.001	0.231	
Intercept	1189.835	1	1189.835	.976	.024	0.713	
Pre-score (Covariate)	3297.845	1	3297.845	4.283	.013	0.356	
Treatment Group	815.704	1	815.704	3.327	.007*	0.131	
Quantitative Ability	1022.126	2	511.063	0.603	.002*	0.206	
Treatment Group x Quantitative Ability	987.939	2	493.969	1.543	.020*	0.214	
Error	6926.179	106	65.341				
Total	14961.510	112					
Corrected Total	9576.782	110					

* significant at 0.05, R Squared= .411 (Adjusted R Squared = .383)

H₀₁: There is no significant main effect of Bingo game instructional strategy on pupils' achievement in mathematics

From Table 1, the result indicated the posttest score on pupils' mathematics achievement using the pre-score as covariate revealed that there was significant main effect of treatment

($F_{(1, 110)} = 3.327$, partial $\eta^2 = 0.131$). Therefore, H₀₁ was rejected.

Table 2

Estimated Marginal Means for Post-Achievement by treatment and Control Group

Treatment	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Bingo Games Instructional Strategy (BGIS)	14.07	0.399	13.281	14.864
Conventional Strategy (CS)	6.61	0.365	5.889	7.334

Table 2 revealed that mathematics pupils in Bingo Games Instructional Strategy (BGIS) treatment Group had the higher post-achievement score (14.07), while the Conventional Strategy (CS) Control Group had the least adjusted post-achievement mean score (6.61). This order is represented as BGIS > CS

H₀₂: There is no significance main effect of quantitative ability on pupils' achievement in mathematics.

Table 1 revealed that there was significant main effect of quantitative ability ($F_{(2, 110)} = 0.603$, partial $\eta^2 = 0.206$). The mean score of low quantitative ability is ($\bar{X} = 31.451$ and $SD = 9.892$), medium quantitative ability is ($\bar{X} = 50.000$ and $SD = 0.000$) and the mean score of high quantitative ability is ($\bar{X} = 56.904$ and $SD = 9.892$) and their mean difference is 36.169. This result indicated that the high quantitative ability participants benefited from the treatment package more than the other participants counterpart. H₀₂ is rejected.

H₀₃: There is no significance two-way interaction effect of treatment (Bingo game instructional strategy) and quantitative ability on pupils' achievement in mathematics

Finally, there was significant two-way interaction effect of treatment with quantitative ability of

the participants $F_{(2, 106)} = 1.543$, partial $\eta^2 = 0.214$. With these results, it shows that Bingo game instructional strategy was effective in enhancing pupils' mathematics achievement and the causal link between the treatment and criterion measure was determined by quantitative ability difference. H_03 is also rejected.

Discussion

From the findings, results showed that the treatment enhanced pupils' mathematics achievement. This result agrees with the findings of (Ofodu and Lawal, 2011) that the treatment applied in their studies has shown positive effect the same as with the achievement of pupils involved in the study. This result also agrees with the results of Bala and Musa (2006) and Mustafa et al. (2011) who found the use of instructional materials (manipulatives) such as games, have positive effects on students' academic achievement. Butler, Miller, Crehan, Babbitt, and Pierce (2003) found that the impact of the Bingo game instructional strategy was able to foster primary school students' mathematics achievement.

There was a significant main effect in the posttest scores of pupils' quantitative ability exposed to treatment and conventional group. This indicates that pupils' quantitative ability helps in thinking and reasoning of learning mathematics when Bingo game instructional strategy was applied in teaching primary school pupils. This is contrary to the findings of Mansureh, Atsusi and Haiyan (2010). Their findings indicated that prior mathematics knowledge/computer skills did not play a significant role in achievement and motivation of the participants who played the games. Adu et al. (2009), in her findings, discovered the effectiveness of quantitative ability as the ability to execute tasks which are related to the handling of numbers.

Finally, results show that there is significant interaction effect of treatment and quantitative ability in enhancing pupils' mathematics achievement among participants. This means that there is significant interaction effect in the posttest scores of treatment and quantitative ability as it enhanced pupils' quantitative ability among participants. Hence, this could be as a result of the fact that the intensity of treatment had significant impact on the participants irrespective of whether their ability is high, medium or low. In the aforementioned result, the result revealed that quantitative ability had significant main effect on the pupils' mathematics achievement of the participants, which is also demonstrated in this case, that the quantitative ability had significant interaction with treatment. Although for the treatment, Bingo game instructional strategy had incremental effects in the pupils' mathematics achievement of the participants either low, medium or high.

Conclusion

The study concludes that Bingo game instructional strategy enhanced pupils' achievement in length, perimeter, shapes and figures in Nigeria, with regards to their quantitative ability. Therefore, with rigorous research on mathematics as a subject or as a course of study among Nigerian students, there is hope that with the use of Bingo game instructional strategy, the situation can be changed for the better and better performance in accordance to the expectation of their teachers, parents, school authorities, examination board etc.

Recommendations

In the light of this result, primary school mathematics teachers are encouraged to adopt Bingo game instructional strategy in teaching.

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Preferred Learning Style of Students of Nangkor Central School, Bhutah

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Nangkor High School, Bhutan

Abstract

Students preferentially absorb and process information in diverse ways. Pedagogy should vary accordingly. The knowledge of teachers on the learners' preferred learning styles plays a pivotal role in better teaching and learning processes, contributing to a better-quality education. Still, little is known about the preferred learning style of learners. In the present study, the VARK (visual, aural, read or write, kinaesthetic) model version 8.01 survey questionnaire was adapted and given to 215 middle and higher secondary students. Using descriptive analysis of correlation, frequency and percentage, the study revealed that the preferred learning styles of students are aural (A) and kinaesthetic (K) with the smallest preference given to visual (V). The findings showed that male and female participants' preferences were the same, and that high-achiever learners prefer K. Recommendations from the findings apply to both the classroom and teacher training opportunities.

Keywords: gender learning preferences, learning style, Nangkor, Bhutan, teacher education.

Context

Nangkor Central School (NCS) is nestled at the foot of Shumar Gewog in Pemagatshel District, Bhutan. Since its inception in 1997, the school has hosted a diversity of students with the majority coming from economically disadvantaged family backgrounds. Set with boarding facilities and a conducive learning environment, the school houses classes nine to twelve (ages 15 to 17). At present, there are 29 teachers, including the principal, 28 supporting staff and 515 students.

Improving education in Bhutan is a national concern, and the Bhutanese education system has seen unprecedented reforms in recent decades since its inception. Many challenges have been met, but there are more that need to be addressed. It was found in several studies conducted by the Royal Education Council that a gap exists between the teachers' approaches to pedagogy and the students' learning (Ministry of Education, 2014). As an intervention, a series of professional development programmes were provided to teachers by Teacher Professional Support Division under Ministry of Education. As envisioned in the Education Blueprint, the nature of learning has transitioned from a culture of fear to one of participation. However, in the aftermath of the COVID-19 pandemic, the usual mode of contact teaching culminated into an e-learning strategy for meaningful student engagement, at least until it is superseded by a 'new normal' approach, yet to be determined.

Education stakeholders, especially the educators in the schools, are constantly looking for avenues to improve students' academic performance. Understanding the preferred learning style of students is seen as one path to improve the academic learning. One study (Dalaman, et al., 2019) suggested that knowing the preferred learning style of students enables academic success by providing more effective solutions to problems encountered in the teaching-learning process. This is accomplished while educators are constantly striving to diagnose the factors that influence the academic performance through various research undertakings, consultations and conferences. However, there has been no empirical evidence of preferred learning styles of Bhutanese students, and the present study, which is bedded on the VARK model, is the first of its kind in our school. VARK refers to the four types of learning styles: visual, aural, reading or writing, and kinaesthetic, and maintains that students have different styles related to how they process information, often referred to as preferred learning style (Fleming, 1995).

In the past four consecutive years, students' academic performance has been progressively above expectations; however, there were no definite pedagogical factors that could help explain the results. With the outbreak of COVID-19 pandemic, the modes of teaching-learning have changed dramatically, with the rise of e-learning on digital platforms. The research study by Li and Lalani (2020) on the effectiveness of online teaching suggested that, for those students who have access to the right technology, there was evidence that learning online was effective by increasing retention of information. There were, however, challenges to overcome. Some students without reliable internet access or technology struggled to participate in digital learning. Consequently, stakeholders determined it to be imperative to discover the learning preferences of the students in order to cater meaningfully to their needs, based on a study conducted by Butler (2004). In this study about students' learning styles and their preferences for online instructional methods, it was revealed that there were several significant positive and negative relationships between learning styles and instructional methods.

Literature review

Educational research has identified several factors that account for potential differences in how students learn. One of these factors often cited in the research is a student's preferred learning style (McKenna, et al., 2018; Romanelli, et al., 2009; Willingham, et al., 2015). The relationship between learning styles and learning achievement outcomes remains argumentative (McKenna et al., 2018); however, it has been generally accepted that individuals' learning styles have an impact on their performance and achievement of learning outcomes (Dalaman et al., 2019).

Learning Style Theories

The standard definition for learning style is "cognitive, affective, and physiological traits that are relatively stable indicators of how learners perceive, interact with, and respond to the learning

environment” (Romanelli et al., 2009, p.1). According to Willingham et al. (2015), scientists such as Carl Jung, Felder and Silverman, Gregorc, and Kolb, have devised numerous models of learning styles, many of which are used in various research studies. Learning styles theories are varied, yet common among them is the idea that individuals learn in different ways and that learning can be optimized by tailoring instruction to their style (Willingham et al., 2015).

The VARK model

One of the most recent and versatile models that looks at learning styles is the VARK model designed by Neil Fleming (McKenna et al., 2018). The VARK model uses a questionnaire that assesses an individual’s learning styles. It was primarily developed at Lincoln University of New Zealand in 1998 and has undergone various modifications. According to McKenna et al. (2018) many studies were conducted using this pretested and validated survey questionnaire in research in different fields and disciplines. The VARK questionnaire is based on three principles:

1. everyone has their own styles to acquire knowledge,
2. learner’s motivation is increased when different learning styles of learners are considered by the teacher and
3. educational concepts are learned through deployment of four sensory modalities and perceptions.

This instrument, which is based on interaction and response to the learning environment of the students, divides students into four categories: visual, aural, reading or writing and kinaesthetic (Karim, 2014).

Visual learners tend to prefer information presented through graphs, diagrams, essays and charts, which allow them to assimilate information best as they can visualize relationships and ideas. When instructors illustrate or diagram their lectures on a whiteboard, visual learners may remember the information better (Flavin, 2019; Fleming, 1995).

Aural learners prefer listening to information rather than reading it or seeing it visually displayed. They may speak and read slowly and tend to be linear thinkers, who may repeat concepts that they hear out loud. When it comes to studying, an auditory learner might remember material best if they talk about it with someone else, since it will be easier for them to recall a conversation (Flavin, 2019; Fleming, 1995).

Reading and writing learners tend to be comfortable with the written word. They prefer to consume information by reading texts and can further absorb information by condensing and rephrasing it. The traditional school textbook and annotation process works well for the reading or writing learning style (Flavin, 2019; Fleming, 1995).

Kinaesthetic learners prefer to learn through simulation and real-life experiences, often described as hands-on activities. They learn best by doing and may feel uneasy if forced to sit for long periods of time. Sometimes, even being physically engaged will help them retain information better (Flavin, 2019;

Fleming, 1995).

Methodology

Significance of the study

The very endeavour of this survey study was to advance our concerted strategies into school policy for constant rise in academic excellence and to fulfil the school's mission: "To grow into an Institute of Ideal Bhutanese citizen' and become the Peak of Learning Centre of the East" (NCS, 2018, p. 4). It was also designed to provide teachers with approaches of culturally responsive teaching that will meet the needs of diverse individuals' preferences of learning. This study would further recommend on the feasibility of e-learning pedagogies and incorporation of it into the mainstream of teaching-learning process post COVID-19 situation.

Research Design

This study attempted to investigate the preferred learning styles of the secondary students of NCS in eastern district of Bhutan. It was designed within the theoretical paradigm of post-positivism where cross-sectional survey was used to obtain students' preferred learning style (Creswell, 2003). In such an approach, surveys are commonly used to obtain reliable data that describe either past or existing situations of the learning environment and academic performances of the students. The cross-sectional survey design was employed as it enables the researchers to understand the prevalence of attributes for a sample of population at one point of time (Creswell, 2003). Subsequently, quantitative research method was used.

Participants

The questionnaire was administered to a representative population. Students of different grades were involved in the sample. Stratified random sampling technique was used to select the representative populations of the study. According to Creswell (2003), random sampling is a sampling technique where each sample has an equal probability of being chosen mainly for unbiased representation of the total population. The goal of stratified random sampling is to select a sample in such a way that the target sub-groups are represented in the sample in the same proportion that they exist in the population. The sample of this study consisted of 215 students, which was derived from an online sampling calculator. Selection of participants from each class was randomly done. All participants signed an informed consent document, ensuring strict confidentiality that the information would be used for research purposes only.

Research Instrument

The research instrument used in this study was adapted from the VARK model close-ended survey questionnaire. The questionnaire was used as it enables the researchers to reach a large sample within a

short span of time (Creswell, 2003). Survey questionnaire contained two parts. The first section provided demographic information of the students. The second part contained 16 items investigating the learning styles of students. A few questionnaires items were adapted mainly to contextualize for quick comprehension of it by our participants. Permission to use the questionnaire was granted by its author.

Data Analysis

The data were processed and analysed quantitatively using Microsoft Excel (2007). After checking for completeness, data were coded and entered into a computer system. As stated above, the questionnaire consisted of 16 items and students were given the option to tick only one option for each item, depending upon their preferences. The analysis used by Das, Chakraborty and Sukul (2020) was used to obtain the preferred learning style, which was focused on finding the preferred unimodal learning style by restricting multiple responses to a single question. The notion behind this approach was to discover the preferred mode of learning in the study population. In addition, the descriptive analysis was carried out to profile sample characteristics and to determine major patterns that emerged from the data. Major findings from the data sets were presented in the form of percentage and frequency distributions in the form of tables and charts. Further, correlational analysis was used to determine prevalence and relationship among the variables used in the study.

Research Questions

In order to discover more about the above ideas, the study endeavoured to address the following research questions:

1. What are the learning style preference of NCS's students of 2020?
2. Does NCS students' learning style vary depending on their gender, grade and score?

Findings

This section presents the findings of the study in relation to the objectives of the study. It includes demographic findings, overall preferred learning style, preferred learning style based on gender and previous academic score, and preferred learning style based on grade level.

Table 1 shows basic demographic information of the participants. Concerning the school class level, 10.7% of the students were in class nine, 20.5% in class ten, 26.0% in class eleven and, finally, 42.8% were in class twelve. Further, 52.1% of the respondents were male with 47.9% being female. Lastly, 76.7% of the participants were boarders at their schools and 23.3% were day students.

Table 1*Demographic Information of the Sampled Respondents*

	Frequency	Percentage
Class		
Nine	23	10.7%
Ten	44	20.5%
Eleven	56	26.0%
Twelve	92	42.8%
Gender		
Male	112	52.1%
Female	103	47.9%
Students		
Boarders	160	76.7%
Day-students	55	23.3%

Figure 2 represents the cumulation of all the academic scores completed during a school year of the sampled respondents. One percent of the participants scored below 35%, 2% scored between 35% and 50%, while 40% of the sample scored an average between 51-65%. Further, 37% scored an average of 66-75% and a further 20% scored above 76%.

Finally, for demographic information, Figure 3 shows the socio-economic background of diverse sampled respondents. It was evident that the majority of the participants (69%) have parents who are farmers, 18% have parents who are civil servants, 12% claimed that their family were in some type of business and 1% from gave other socio-economic backgrounds for their parents' occupation.

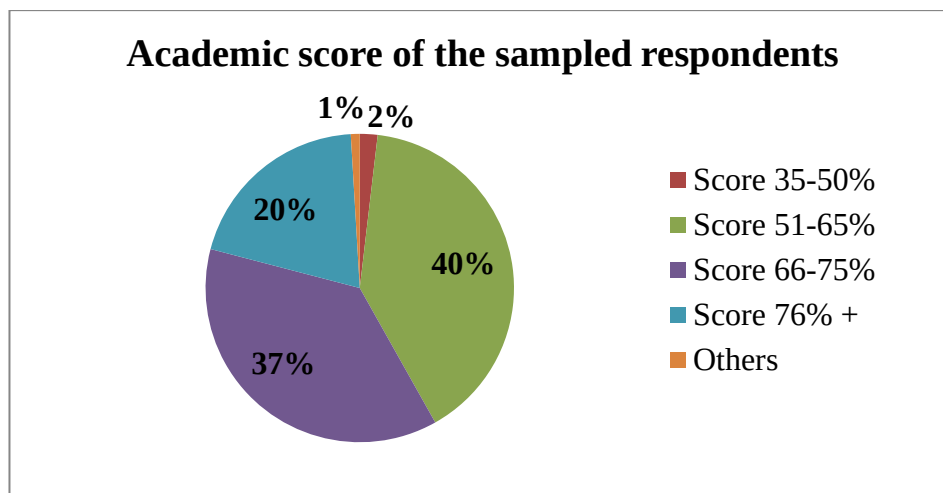
Figure 2*Academic Learning Score of the Sampled Respondents*

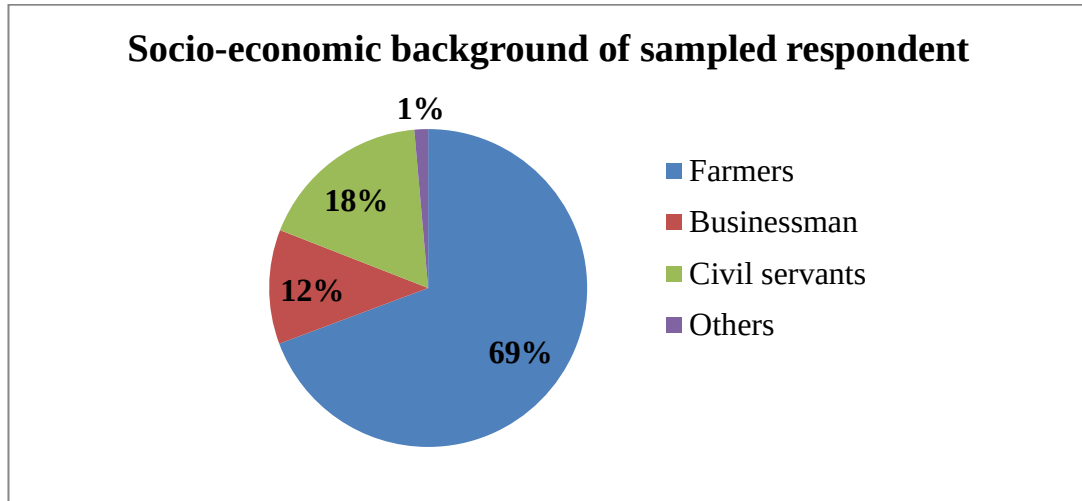
Figure 3*Socio-economic Background of the Sampled Respondent*

Table 2 shows the preferred learning style of the students. Of the total respondents, 16.52% indicated that they prefer a visual approach to learning. Another 31.17% of the students preferred to learn by listening and speaking. In addition, 21.25% preferred to learn through writing and reading. The remainder or 31.06%, of the sampled respondents preferred to learn by kinaesthetic means. The statistics revealed that the majority of NCS students favoured aural learning styles (31.17%), while the fewest preferred visual (16.52%). There is narrow difference between aural and kinaesthetic way of learning.

Table 2*Preferred Learning Style of Student*

Learning Style	Percentage
Visual	16.52%
Aural	31.17%
Read/Write	21.25%
Kinaesthetic	31.06%

Table 3 describes the preferred learning style of the students in terms of their gender. Males most preferred learning style is kinaesthetic approaches (31.50%) and least is visual (16.56%) while females tended most towards aural (31.78%) the most and visual (16.46%) the least. Both male and female prefer least for visual way of learning. However, for most preferred learning style, there is a narrow difference between aural and kinaesthetic way of learning for females. Further, the data for the preferred learning style based on gender across each style suggest that the preferences between the genders is similar.

Table 3*Preferred Learning Style Based on Gender*

Learning Style	Male	Female
V	16.56%	16.46%
A	30.58%	31.78%
R	21.35%	21.15%
K	31.50%	30.60%

Table 4 shows the correlation between preferred learning style of male students and female students. For those respondents, the preferred learning style scores of males were positively correlated with that of females, $r = 0.99$.

Table 4*Correlation between Preferred Learning Style of Male and Female Students*

	Male	Female
Male	1	0.99
Female	0.99	1

The next analysis was based on participants' grading category done in Bhutan. The classes 9 and 10 were graded as middle secondary (MS) students and the classes 11 and 12 were labelled in higher secondary (HS) students. Table 5 shows the learning style preference statistics of MS and HS students. The most commonly chosen preferred learning styles of MS and HS students were aural (30.42%) and kinaesthetic (37.67%), respectively. While the least preferred learning style for both MS and HS students was visual (17.30% and 19.25%).

Table 5*Preferred Learning Style Based on Grade Level*

Learning Style	Middle Secondary students (Classes 9 & 10)	Higher Secondary students (Classes 11 & 12)
V	17.30%	19.25%
A	30.42%	37.59%
R	22.33%	24.73%
K	29.95%	37.67%

Table 6 shows the correlation between preferred learning style of MS students and HS students. It is evident that for those respondents in this survey, the preferred learning style scores of MS students were positively correlated with that of HS students, $r = 0.995$.

Table 6*Correlation between Preferred Learning Styles of MS and HS Students*

	Middle Secondary students (Classes 9 & 10)	Higher Secondary students (Classes 11 & 12)
MS students	1	0.995
HS students	0.995	1

Table 7 represents the preferred learning style of the students based on their previous academic score. It reveals that irrespective of previous academic score all students tend to show kinaesthetic learning style as their most preferred learning style. Furthermore, low achievers prefer kinaesthetic learning style as their most preferred way of learning (33.33 %).

Table 7*Preferred Learning Style Based on Academic Score*

Learning style	Academic score (35-50%)	Academic score (51-65%)	Academic score (66-75%)	Academic score (76% +)
V	20.98%	15.32%	17.09%	17.11%
A	33.33%	31.77%	31.06%	30.56%
R	12.35%	21.89%	20.65%	21.47%
K	33.33%	31.03%	31.19%	30.85%

Table 8 shows the correlation between preferred learning styles in academic scores (AS) of the students. It is evident that for those respondents, the preferred learning style scores were positively correlated though the degrees of association vary. There is high degree positive correlation of students whose academic scores are 66-75% and 76+ indicating that high achievers' most preferred learning styles are same.

Table 8*Correlation between the Preferred Learning Styles based on Previous Academic Score*

	AS (35-50%)	AS (51-65%)	AS (66-75%)	AS (76% +)
AS (35-50%)	1			
AS (51-65%)	0.76	1		
AS (66-75%)	0.85	0.99	1	
AS (76% +)	0.82	0.99	0.998	1

Discussion

The preferred learning styles of NCS students were aural and kinaesthetic and these findings are consistent with other studies (Das et al., 2020; McKenna et al., 2018; Reid, 1987).

The preferred learning style scores of males were positively correlated with those of females indicating that preferred learning styles of male and female students are essentially the same in this study.

This finding was inconsistent with most learning style research (Espinoza-Poves et al., 2019; Jones et al., 2003). This inconsistent finding may be attributed to a variety of factors including contextual setting, individual differences, past educational background, and relatively small sample size. As there was a high degree positive correlation in preferred learning style based on gender, it evidently signified that, gender-wise, segregation during teaching is not required.

The high correlation of preferred learning style between MS and HS students indicated that teachers teaching in both the grade levels can adopt similar teaching strategies. This finding was inconsistent with one by Espinoza-Poves et al. (2019) showing that the learning style was not associated with socio demographic variables (sex, level of education & previous academic score). The inconsistent finding could be attributed to the contextual setting, cultural setting and socio-economic background of students.

Conclusion

The preferred learning styles of NCS students in the VARK tool in the present study were aural and kinaesthetic while the least preferred was visual. The findings of this study have important implications for learning atmosphere of NCS and for pedagogical practices of teachers as well. First, despite their diverse intuitive levels about individual differences in the ways students learn, many of them may still be unaware of their learning preferences in general. Creating and developing students' awareness of their own learning styles may be quite helpful in increasing control of their learning habits and strategies, which should in turn, influence their academic performance.

Second, as students hold and share diverse personal experiences, knowledge bases, and learning styles to the classroom, they may require multi-faceted teaching pedagogy for effective learning. Teachers should employ a variety of pedagogical approaches in their teaching. Research on teacher effectiveness has shown that successful teachers tend to be those who are able to use a range of teaching strategies and who use a range of interaction styles, rather than a single, rigid approach to teaching and learning (Darling-Hammond, 2000). Third, as our understanding of our students' learning and cognition increases, in a way, that permits productive professional development among our teaching fraternity.

This study found existence of high degree positive correlation between the preferred learning styles based on gender, grade levels and academic score of the students. This indicated that the preferences of most of the students were same and kinaesthetic and aural infused pedagogy could be incorporated by teacher to enhance the academic excellence of students.

Recommendations

An effective teacher must have knowledge of students' learning styles apart from pedagogical

knowledge, so the assessment of students' learning styles using VARK tools in the beginning of the academic year is recommended. This study recommends teachers to use mostly aural and kinaesthetic teaching strategies as students' preferences of learning were found to be these two approaches.

Moreover, this study recommends the District Education Officers, School Management body and related stakeholders to explore possibilities of providing teachers with tailor-made teaching pedagogies and professional development programmes that will cater to the needs of those aural and kinaesthetic learners.

Limitations

This study had some potential limitations that may have affected the results. It was limited to a single higher secondary school. The findings of this study can neither be inferred nor generalised as it was purely as case study of one school. In addition, the study just attempted to understand the preferred learning styles of students and it did not look into the causes, reasons, in-depth analyse of students' learning abilities. Future research projects might attempt to replicate this study with additional refinement of variables related to the learning styles of students such as motivation, study habits and learning environments. The study could be carried out to identify specific learning styles required for different subjects through inclusion of qualitative means like interviews and focus groups to generate more authentic results.

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Reflections on place, Place-Based Education and Wild Pedagogies in Denmark: A Schooner Project

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Abstract

Based on philosophical reflections on the concepts of place, place-based education, wild pedagogies and outdoor schooling in Denmark, the article presents and reflects upon selected results from a three-year accompanying qualitative research conducted in connection with a project for underserved young people and students. Approximately 40 participants aged 14-29 with social, personal, relational and/or substance abuse problems were enrolled as crewmembers on a schooner in periods ranging from a few weeks to six to eight months during the project's three-year duration. The results indicate that place, nature, an extended stay and the relationship competency of the crew are all factors that can have a positive and transformative impact on participants, supporting their efforts to get "on an even keel" - to use a maritime expression that alludes to keeping a vessel's keel steady, assuring smooth sailing.

Keywords: place-based education, wild pedagogy, underserved students, well-being, alternative pedagogy

Introduction

On March 15, 2021, a class of Danish grade seven students met with their biology teacher outside the Planetarium, located by the lakes in Copenhagen, for their face-to-face lesson in many months (Jensen, 2021). Like schoolchildren in many European countries, Danish students in grades five to nine have been taught online, unable to attend school. Even as some of the restrictions were lifted, the class was not allowed to meet in the classroom. Due to local Covid-19 restrictions, students in grades 5-12 in the Copenhagen area were only allowed to meet in person once a week, and only outdoors. One young student, who had previously enjoyed having days off in school, expressed her joy at being back at school, "in the beginning, it felt so great that we did not have to go to school. Now, I am so happy that we are allowed to go back" (Jensen, 2021).

With respect to the teaching content of this particular outdoor school day in Copenhagen, the biology teacher emphasized, that 'this day is about so much more than photosynthesis and bird species. The students must be given time to find each other as a group again'.

Photos showing students talking and walking in pairs around the Copenhagen lakes clearly show that this first day back took place at a very different location or “place” than usual, schools generally being associated with buildings, classrooms, institutions.

The above account reveals many things about how the Covid-19 pandemic has affected all aspects of personal and societal life for the past year in many countries. Schools in Denmark have been closed for months, online teaching is “the new normal,” and many schoolchildren are forced to stay at home with no or very little contact with classmates and friends. Many aspects of the pandemic’s impact on teaching and learning are already being studied. Inspired by the unusual environment of the outdoor teaching day in Copenhagen, however, this article will reflect on the implications of “place” for education.

The American philosopher Edward S. Casey (1997; 2001, 2009) has reflected on the concept of place from a philosophical perspective, and the Austrian-Canadian researcher David Greenwood has developed the so-called “place-based education” approach (Greenwood & Smith, 2014). Jickling, Blenkinsop, Timmerman, & Sitka-Sage (2018) introduced the idea of “wild pedagogies,” which takes nature seriously as an important part of education, and, in Denmark, “outdoor schools,” “nature schools” and various nature-based projects were developed during the 2010s—not only for mainstream schools, but also in projects focusing on underserved students (Knudsen, 2020; Petersen & Andersen, 2021). Thus, “place” as a notion, a site and a location plays a pivotal role in education, even if not always at the center of educational research.

In this article, I will introduce and reflect upon the concepts of place, place-based education, and wild pedagogies. Drawing on an accompanying research on underserved young people’s participation in a Danish three-year “place-based” project on a schooner, I will discuss some of the results in relation to the notions of place-based learning and wild pedagogies. Finally, I will return to the current situation in Denmark during the Covid-19 pandemic and reflect on the possibilities for richer education, even in a situation with enforced outdoor schooling like the school day in Copenhagen on March 15, 2021.

Place, place-based education, wild pedagogies and open schools

Theoretical and philosophical reflections on the concept of “place,” often as opposed to “space” (Casey, 2009), are cornerstones of not only the approach of “place-based education” (Greenwood & Smith, 2014), but also that of “wild pedagogies” (Jickling et al., 2018).

The notion of “place”

The American philosopher Casey (1997; 2001; 2009) has discussed and elaborated on the concept of “place.” In an early article from 1997, he poses a central question – and implicit

hypothesis - about place: “Or might it be so that place is something special, with its own essential structures and modes of experience, even something universal in its own way?” (Casey, 1997, p. 13). Casey (2009) elaborates on this hypothesis in his later work, emphasizing the importance of perceiving “place” – be it different sites, locations or emplacements – as a phenomenon in itself. In an article from 2001, Casey defines “place” as “the immediate environment of my lived body – an arena of action that is at once physical and historical, social and cultural” (p. 683). Cruz-Pierre & Landes (2013) highlight Casey’s emphasis on place as the environment of a person’s lived body, which adds an anthropological connotation to his understanding of place because “‘an unplaced’ or ‘disembodied’ memory is impossible”. In *Getting Back to Place* (2009), Casey focuses on the importance of place – as opposed to space – for individuals and their memories, histories and even their psychological well-being. He writes,

I shall accord to place a position of renewed respect by specifying its power to direct and stabilize us, to memorialize and identify us, to tell us who and what we are in terms of *where we are* (as well as where we are *not*) (p. xv).

As mentioned by Cruz-Pieere and Landes (2013), Casey puts forward

a renewed understanding of the place-world. The placial and bodily aspects of memory invite a phenomenological description of ‘embodied implacement’, and phenomenology becomes an exploration of the body *in* built and wild places. Human experience, then, is the ongoing journey between places. (p.3).

Place-based education

While Casey foregrounds the concept and importance of place from a philosophical perspective, Greenwood and colleagues, in their efforts to introduce a new approach to education, take the notion of place further by introducing the concept of “place-based education” (Greenwood, 2013, 2013a, 2019; Greenwood & Smith, 2014). In *Place-based education in the global age: local diversity*, Greenwood & Smith (2014) suggest that educational institutions overlook the fact that every human being exists in a place that surrounds and co-creates not only the individual, but also the institution and society. In addition, they argue – hereby in many ways echoing Casey’s connotation of the notion of place – that basing educational institutions in places rather than in abstract systems entails viewing students as real, living and breathing (embodied) persons for whom teaching has tangible effect. The critique raised by researchers is hence that educational institutions have become abstract entities deprived of contact with the real world. Smith (2002) emphasizes as one of the strengths of a place-based approach to education that it “can adapt to the unique characteristics of particular places, and in this way it can help overcome the disjuncture between school and children’s lives that is found in too many classrooms” (p.584).

He underlines that, “although educators are often quick to say that schools are as much the ‘real world’ as any place else, ... what happens in classrooms is qualitatively different from what happens elsewhere” (p.586). In school, Smith continues, the real world is mediated, and “the job of students — despite all the well-intentioned attempts to engage them as participants in the construction of meaning — is to internalize and master knowledge created by others” (p.586).

Quoting the American educationalist John Dewey, Smith (2002) points to an epistemological aspect of place-based education for children,

From the standpoint of the child, the great waste in the school comes from their inability to utilize the experiences they get outside the school in any complete and free way within the school itself; while, on the other hand, they are unable to apply in daily life what they are learning at school (p. 585).

Place-based education hence strives to position children as central actors in their own lives and learning – among other things, by taking them to different places and facilitating different experiences, or by involving them in activities addressing real-world problems. Smith (2002) points to three different variations of place-based education: cultural studies, e.g. “oral histories and journalism” (p. 588), nature studies, e.g. “investigation of local natural phenomena and nature” (p. 588) and real-world problem-solving, e.g. “engaging students in the identification of school or community issues that they would like to investigate and address” (p. 589). In many ways, the recently introduced concept of “wild pedagogies” can be seen as a new kind of nature studies approach.

Wild pedagogies

In the book *Wild pedagogies: touchstones for re-negotiating education and the environment in the Anthropocene*, the authors propose a new pedagogy, partly as a critique of and solution to the so-called Anthropocene era, characterized by the significant human impact on Earth’s geology and ecosystem, including but not limited to climate change (Jickling et al., 2018). According to the authors, “Wild pedagogies aims to re-examine relationships with places, landscapes, nature, more-than-human beings, and the wild” (p. 1). As such, like the work of Casey (2009) and Greenwood & Smith (2014), wild pedagogies focus on places and, in particular, on nature as the focus of a re-negotiation of education.

Jickling et al. (2018) furthermore introduce several touchstones or creeds while outlining their understanding of how education should be re-negotiated. In the first of these touchstones, they suggest nature be treated as a co-teacher in education:

#1: We believe that education is richer, for all involved, if the natural world and the many denizens that co-constitute places, are actively engaged with, listened to, and taken

seriously as part of the educative process (p. 80).

Similar to the founders of place-based education, emphasizing the necessity to focus on real-world issues and introduce and engage students in learning, in their second touchstone, the founders of wild pedagogies claim “that education is richer for all involved, if there is room left for surprise” (p. 84). However, “wild pedagogies” are not understood as only taking place in nature per se. Like Casey’s (2009) complex notion of place, in their third touchstone Jickling et al. (2018) emphasize:

#3: We believe that the wild can be found everywhere, but that this recognition and the work of finding the wild is not necessarily easy. The wild can be occluded, made hard to see, by cultural tools, by the colonial orientation of those doing the encountering, and, in urban spaces, by concrete itself (p. 88).

According to Jickling et al. (2018), wild pedagogies thus strive to raise students’ awareness of and active engagement in places, whether located in natural or urban environments, by encouraging both students and teachers to listen to nature and places and take them seriously “as part of the educative process” (p. 80). A growing interest in increasing students’ awareness of place, be it in the shape of specific approaches such as place-based education and wild pedagogies or general efforts to engage schoolchildren in their location and ‘embodied’ real-world while learning, has also been evident in Denmark since the 2010s.

Open schools in Denmark in the 2010s

In the 2010s, a new concept of so-called “open schools” - seeking to nurture students’ engagement in and sense of responsibility for their local communities and natural surroundings - was introduced in Danish primary and lower secondary schools (Danish: Folkeskole). The Danish Folkeskole Act from 2014 established a statutory foundation for open schools (LBK no. 665 of 20/06/2014, chapter 2, subsection 4), obliging schools to enter into partnership agreements with local organizations (Knudsen, 2020). Outdoor teaching initiatives in Denmark, such as outdoor schools, museum pedagogies, nature schools, and open schools, challenge the usual physical and organizational framework for teaching (Hartmeyer, Bølling & Bentsen, 2017). Research on outdoor school education has focused on the importance of learning about scientific phenomena in natural milieus, and on how student wellbeing and teaching are affected when lessons move outside. Danish researchers have found added value in local partnerships, and in the concepts of open schools and outdoor schooling, claiming that open and outdoor schooling principles add an extra dimension to traditional schooling and support students’ development of creative and democratic competencies (Knudsen, 2020; Rosenbäck & Knudsen, 2020). However, a place-based educational approach, such as that developed by Greenwood and Smith (2014), has been absent from the Danish research. In the following, I will introduce a three-year “place-based”

project that sought to support underserved Danish young people and students.

A Danish “place-based project” for underserved young people and students

As in many other European countries (European Commission, 2014), a certain percentage of young people in Denmark leave school without qualifications (Vive, 2019). This group (often labeled dropouts) - who, for various reasons, do not succeed in finishing school, which in a Danish context means completing grade 9 or grade 10 - has been a concern not only for schools, teachers and politicians, but also for the local communities where the young people live. After leaving school, some of these young people become involved in criminal activities, such as gang violence and substance abuse, and/or experience psychological and even physical illness due to poor nutrition (Vive, 2019). Well-being is often an unknown concept for these young people.

Being known for its relatively large port and shipping activities, a city municipality located at the west coast of Denmark finds that many of its young residents leave school too early. The local authorities contacted the crew of an old schooner located in the city port, known for working with socially disadvantaged young people from all over the country. A three-year contract was agreed in which the crew of the schooner undertook to host vulnerable young people from the municipality. In addition, it was decided to establish a three-year accompanying research project following the young people enrolled on the schooner. The author of this article and a colleague carried out this follow-up research (Petersen & Andersen, 2021). In the following, I present the schooner project and its target group, as well as the methodology of the research and selected results.

Target group

The municipality set a number of criteria for the target group. The young people (aged 14 to 29) to be enrolled on the schooner were defined as needing “new experiences” and to be “part of meaningful communities.” They struggled with a lack of self-esteem, self-confidence and well-being and were in need of a more clearly structured rhythm to help them organize their everyday lives. Furthermore, the project was targeted at young people with personal, emotional or/and social difficulties and who struggled with establishing and maintaining interpersonal relationships. They lacked motivation concerning their own educational and career opportunities, most of them labeled dropouts. They had often been diagnosed with various psychiatric or other medical conditions and some of them struggled with substance abuse problems. Finally, the project targeted young people who needed a change of scenery due to their particular circumstances, whether of a social, cultural, personal or financial nature. In sum, the target group was underserved young people and students facing extensive family, social, educational, substance abuse and/ or

other problems (Petersen & Andersen, 2021). In continuation of Nielsen (2011, 2013), Dam & Siang (2021) defining “persona” as “fictional characters” that are created “based upon [...] research” in order to represent a typical person (n.p.) – the following persona description illustrates a typical young participant on the schooner.

Persona

Johan is 20 years old and on state benefits. He has attended several youth education programs, but never finished any of them. He now spends most of his waking hours sitting at home in his apartment in front of either the television or computer. He has been assigned a social worker who tries to help him figure out what to do with his life. He also has a drug addiction and the only exercise he gets is when going to the shops. Johan states that he feels tired and unwell and his mood is not the best either.

Socially, he states that he has no relationships with other people and that he has cut ties with most of his family. He feels lonely and has difficulty in finding friends. He has no plans for the future in terms of jobs or education. He wants to become clean, but struggles with that too. He does not know what to do, but would like to somehow get away from his current life (Petersen & Andersen, 2021, p. 17).

The schooner project

Once enrolled, the young people become part of the schooner’s crew as sailors. They must be part of the everyday life and work on the schooner. Each sailor has an individual action plan adapted to his/her abilities and needs. The overall goal is to give the young people positive experiences and a sense of achievement so that they can regain a belief in themselves and develop the courage to make plans for the future.

There is room on board for four young people at a time, alongside the schooner’s three full-time employees. Usually, the young people sail with the schooner for three weeks, after which they have one week off on land. Young people are typically enrolled on the schooner for a period of three months; however, the period varies for each young person, from a few weeks to several months. The schooner has many visitors all year round and therefore often sails with guests. For example, many school classes organize in school trips, spending a night or more on the schooner. During these visits, the young sailors (the enrolled disadvantaged young people) are given various responsibilities and tasks. Otherwise, there are only few requirements that the young people must meet during the course of a day: They must attend meals and help with the dishes every day, as well as being given various individual tasks on the schooner.

During the project’s three-year duration, approximately 40 young people were enrolled on the schooner, most of them boys with approximately 10 % girls (Petersen & Andersen, 2021).

Methodology

The qualitative accompanying research during the three-year period was based on a case study approach, field observations on the schooner and interviews with participating young people and the schooner's crew.

Qualitative interviews were carried out with the participants before and during their stay on the schooner, with participants enrolled during the first two years also interviewed after their stay. During year three of the project, the municipality started sending young people aged 14-16 from special needs schools. These participants – who also met the aforementioned criteria – were only enrolled on the schooner for shorter periods and were only interviewed during their stay.

Yin (2003) defines a case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (p. 13). Field observations were conducted with the aim of understanding, interacting with and observing participants in their everyday surroundings during their stay on the schooner. Qualitative interviews are useful when collecting data about specific people's experiences, beliefs and social contexts. They provide an opportunity to examine how individuals understand specific events and situations in their lives (Brinkmann & Tanggaard, 2015, p. 32).

The data from the observations and qualitative interviews were transcribed and hereafter coded and condensed. As outlined by Brinkmann & Tanggaard (2015), condensing refers to the process of selecting, focusing and abstracting data into smaller units for analytical purposes. Malterud (2012) describes the analytical process as follows,

The procedure consists of the following steps: 1) total impression – from chaos to themes; 2) identifying and sorting meaning units – from themes to codes; 3) condensation – from code to meaning; 4) synthesizing – from condensation to descriptions and concepts (p. 795).

In addition, a Strengths and Difficulties Questionnaire (SDQ) was applied as “a brief behavioural screening questionnaire,” aimed at identifying “emotional symptoms; conduct problems; hyperactivity/inattention; peer relationship problems; and prosocial behaviour” (SDQ, 2021).

Selected results

As mentioned in the introduction of the “persona” description, the participants in the schooner project had all experienced personal, social, behavioral, emotional and/or substance

abuse problems prior to the project. The compiled data indicate that they all benefitted from their stay on the schooner; however, they did not all succeed in changing their situation and hereby getting themselves “on an even keel” – to use a maritime expression that alludes to keeping a vessel’s keel steady, assuring smooth sailing. Some of the results are presented below.

The importance of nature and “place”

When asked what particularly impressed the participants during their stay on the schooner, many of them mentioned the schooner itself and being close to nature around the clock.

One participant expressed the importance of place and nature as follows

So it’s just: waking up in fresh air by the sea at sunrise, and we are [...] always in really nice places with really beautiful nature and the like, [...] and it gives you energy and extra motivation to get up, even at seven in the morning [...] it’s damn hard to be negative and tired, I guess (Petersen & Andersen, 2021)

Another participant emphasized the natural environment in a similar way, saying “there is beautiful nature and fresh air.” A third participant told us, “I like being out at sea, and the things you learn and stuff like that, it’s really cool.”

Some of the participants emphasized nature’s calming and even psychologically positive influence on them. One participant explained that the stay on the schooner gave her “peace.” Another – mentioning her highly tumultuous life ‘on land’ – described what happened to her while staying on the ship and in nature:

I can breathe and I can give my head and my brain some space here on the schooner (Petersen & Andersen, 2021).

The particular setting of the schooner, sailing in different waters and always in nature, thus influenced the participants in various ways. In many ways, the young people’s statements mirror Casey’s (2009) emphasis on the power of place as able “to direct and stabilize us, to memorialize and identify us, to tell us who and what we are in terms of *where we are* (as well as *where we are not*)” (p. xv). The schooner, as a place diametrically opposed to their home environment (where they were not), had a stabilizing influence on the participants. Jickling et al.’s (2018) belief “that education is richer, for all involved, if the natural world and the many denizens that co-constitute places, are actively engaged with, listened to, and taken seriously as part of the educative process” (p. 80) can likewise be said to characterize the special place-based education provided at sea on the schooner.

Longer stays on the schooner tend to be more effective in getting the participants “on an even keel”

A further finding of the project was that the longer the duration of the young people’s stay

on the schooner, the greater the likelihood that they – particularly those over the age of 18 – were able to free themselves from previous drug addiction, poor family relationships and low self-esteem. When interviewed again towards the end of the project, three of the participants who had been enrolled on the schooner for more than six months during the project's first year were now enrolled in a maritime educational program and had sailed and worked on other ships after their stay on the schooner. A further participant, who was interviewed several times (at the beginning, in the middle and at the end of his six-month stay on the schooner), underwent a major personal development. Having had no relationship with his sisters or parents for years – due to long-term substance abuse – this young person kicked his habit while on the schooner and started seeing his parents again, and eventually his sister, whom he had not seen for six years. “It took a real leap of faith to contact her” as he explained in one of the last interviews. After the interview, the captain told the interviewer that the sister was now a great “fan” of the schooner (Petersen & Andersen, 2021).

By contrast, the interviews indicated that shorter stays on the schooner tended to result in less profound changes for participants. Some of these students perceived the stay more as “entertainment,” albeit a positive experience. The results thus indicate that brief changes in circumstances tend to have only short-term effects.

Participants' relationships with the crew and the captain are crucial

Another factor mentioned by the participants was their relationships with the crew and the captain, with all of them highlighting the crew, including the captain and his personality and behavior, as crucial to their stay. Some of the young people's statements are evidence of this: “he talks to us as adults and equals,” “he laughs with us and teases us a bit sometimes,” and “he is always in a good mood.” One participant recounted talking with the captain during a four-hour shift, stating that he was not used to having such conversations at home. Klinge (2017) and others (Polite & Burgh, 1992) have stressed the importance of the teacher's so-called relationship competency, defined as the ability to establish good teaching and learning environments and positive relationships with students. Similarly, Klinge (2017) describes a teacher's relationship competency as the ability to establish a positive relationship with each individual student and with the class as a whole. Such relational competency promotes students' well-being and all-round professional, social and personal development. In interviews, the captain indicated that he was well aware of his role as a ‘teacher’ in the particular place-based educational setting of the schooner. The interviews with participating young people showed that he and the rest of the crew generally demonstrated “relationship competency”.

In summary, the specific place and approach to place-based education within nature on the

schooner, the duration of the stay and the relationship competency of the crew stand out as three important themes in the analysis of the results.

Concluding reflections on possibilities for developing richer education as a result of the pandemic

To a great extent, the Danish project for underserved and disadvantaged students and drop-outs described in this article reflects intentions found in approaches like place-based education and wild pedagogies and mirrors the philosophical approach to “place” described by Casey. “Place” - with “its own essential structures and modes of experience, even something universal in its own way” (Casey, 1997, p.13) - is particularly clear and relevant in this project. The schooner is itself a physical place with its own structures and providing various modes of experience, while at the same time moving around between different places as it sails around in different waters along the Danish coastline.

The project furthermore reflects a place-based education approach. Just as Greenwood and Smith (2014) emphasize that children and students must be central actors in their own lives and that they should learn by being taken to specific places and through their involvement in real-life activities, the schooner project offered participants a range of real-world experiences.

The importance of nature – emphasized in the wild pedagogies approach – is likewise an obvious and central aspect of the project. The results from the accompanying research indicate that the real-world education provided on the schooner in many ways seems to be “richer, for all involved” because “the natural world” of the sea co-constituted places in which the participants were “actively engaged with, listened to.” As such, nature and place were taken “seriously” as “part of the educative process” (Jickling et al., 2018, p. 80).

Although highly atypical in terms of a traditional understanding of education as something that takes place in formalized institutions and buildings, and despite the fact that the results may not be transferable to teaching and learning in mainstream schools, the schooner project and approaches such as place-based education and wild pedagogies offer interesting reflections and inspiration in the form of alternative ways of rethinking education. All over the world, including the Scandinavian countries, much mainstream education has been criticized for focusing on tests and assessment rather than on the students (Dovemark et al., 2018; Imsen, Blossing & Moos, 2017) and their unique qualities (Biesta, 2011). There is thus a need to explore ways of developing “richer education” centered on the students rather than curricula, tests and assessments.

To return to the episode described in the introduction to this article, Covid-19 has also changed traditional conceptions of schools and the school environment and ‘taken-for-granted’

locations. As the biology teacher emphasized, the outdoor lesson in Copenhagen was not only about photosynthesis and wildlife. This teacher is aware that many other factors – including a focus on socializing and students’ well-being – are of paramount importance for teaching and learning.

Covid-19 might hereby open the eyes of teachers, students and educators across the world to new ways of developing “richer education.” Focusing on places, nature, place-based education and wild pedagogies may contribute to such reflections.

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Learning to Teach in Higher Education... Online... During a Pandemic: A personal reflection paper from Canada

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I am a doctoral candidate, a former early childhood educator, a former elementary teacher. I am an academic writing researcher, interested in the affective and social aspects of academic writing. I am a mother, a spouse, a daughter, an artist, a friend, a Canadian. I am also a new higher educator. I tell you about the many facets of my identity because integrating these many roles has been important during the past year when all our living was constrained to four walls. There have been no changes in venue possible to signal changes in role. In this reflective writing, I will share some of my experiences of learning to teach in higher education, the pathway I took on this online adventure, and how my online teaching has been influenced by the pandemic context.

I was fortunate enough to teach my first course a year and a half prior to the pandemic. When I taught this first course in higher education, I managed the massive task by returning to the principles I learned as an early childhood educator and as an elementary teacher: show, don't tell; learning occurs through active engagement with the environment; students can achieve more with an experienced guide than they're able to on their own (thank you, Vygotsky). I thought back to my own favourite higher education learning experiences. I had no interest in being the sage on the stage or in recreating the three-hour lectures that I sat through during some of my own undergraduate courses. I settled into a teaching routine with lots of back-and-forth communication with my students, ten-minute introductions to content interspersed with longer, interactive content-rich, usually social, activities.

Towards the end of my second year of teaching, the pandemic hit, and we, with the vast majority of higher education, moved online. Completing that course online was done on an emergency basis – using band-aid solutions to limp to the semester's finish line. Just after we moved online, I was offered a new course to prepare, my first fully online teaching experience. The course had to be fully asynchronous, with no mandatory time-bound meetings.

Basing Decisions on Teaching Principles

While preparing that first fully online course, I spent 150 hours considering content, technology, texts, assessment, and interactions. I was able to track my time in half-hour increments because I was tracking my dissertation progress using the same method. I had many options to weigh in the process of course creation, necessitating some prioritization. Once again, I turned to some of the basic principles on which I'm building my teaching practice. One of my elementary teaching friends tells me that any time she didn't know exactly what to do in a given situation, especially when she was starting her teaching career, she went back to the theories she'd learned during her teacher education degree. This practice gives learning theories a rich purpose in the classroom.

My first consideration was based on a classic: Maslow's Hierarchy of Needs (Maslow, 1943). I wanted to support student safety and security by considering that students may be struggling financially; I wanted to choose a textbook that wasn't overly expensive yet covered all the foundational research topics. I made a list of topics from syllabi that had been generously shared with me by former instructors of the course, and from my own experiences. Once I had the list, I gathered possible texts and graded them on multiple criteria including, topic coverage, price, credibility, accessibility, and readability.

Once the text was selected, I considered TPACK, or technological, pedagogical, and content knowledge (Koehler & Mishra, 2009). Gauging my own TPACK and considering students' familiarity with the now-expanded technology needs, I wanted to replicate some of the in-person teaching strategies in the online environment with as little discomfort for the students as possible. I looked into the capabilities of our learning management system and found a tool that would enable me to put all of the students' materials in one, easy-to-follow format. In this format, we could easily switch back and forth between content and discussion elements.

Thirdly, I started to take into account the emotional factors of online learning. Students often feel a sense of isolation during online learning (Reilly, et al., 2012). By increasing my focus on making connections online and encouraging students to build an online community, it may be possible to counteract those detrimental feelings. I built in multiple opportunities each week for students to interact with each other, suggested guidelines for creating supportive scholarly discussions, and based part of the participation element on this engagement. The student evaluations indicated that this engagement was not enough, however.

Reading the student evaluations from that first online course was an emotional roller coaster – I didn't know how to interpret them. While many students indicated their appreciation, my focus was caught by the few who expressed dissatisfaction, particularly the feedback that felt unreasonable or that was not productive. I felt like I had put a great deal of effort into my online classes, welcoming students in two optional office hours each week, emailing individuals frequently to check in, and interacting with the students at least five days each week in the discussion forums. From my online teaching communities and from professors and instructors I know, there seems to be a trend of students requiring more support over the pandemic year. This increased need for support is not surprising given the current emotional upheaval. Unfortunately, there have also been many instances of plummeting student satisfaction as measured

through course evaluations. I decided to learn what other approaches might help the students feel supported and engaged. One approach to respond to the student comments seemed to be an increased focus on building rapport.

Instructor-student rapport can be defined as a relationship with positive interactions, successful communication, and mutual understanding (Bernieri, 1988; Carey, et al., 1986). Glazier (2016) identifies three strategies for rapport-building in the online higher education classroom: humanizing oneself as the instructor, connecting with students through the feedback process, and one-to-one communication with each student. She also offers several practical suggestions for building instructor-student rapport, including producing short videos to connect with students, emailing the students individually, and providing individual comments on assignments (Glazier, 2021). While I was already doing the latter two, I have decided to create videos for my courses. This will be part of my strategy to increase a sense of instructor presence and participation.

Indeed, as I plan courses for the coming semester, I have resolved to stretch myself and embrace discomfort. The thought of interacting with strangers online can bring anxiety, but the research is clear that interactions between students and instructors build relationships that are important for student success. Clearly, I need to get to know my students better so they aren't strangers, foster relationships to overcome the distance that can be experienced while teaching and learning online, and cultivate the ethic of care to support my growth mindset as it relates to building relationships (Dweck, 2006; Noddings, 2012).

Working through Overwhelm

Teaching in higher education is tremendously rewarding. The possibilities for interactions, preparation, grading, and supporting students can expand to fit whatever time you offer to it, however. This possibility for expansion seems to have grown exponentially during the pandemic when teachers can be constantly at their desks. I have experienced a constant need to balance what feels urgent (What exactly does a stay-at-home order entail? Which level of lockdown are we at now? Who qualifies for immunization right now?), what is pulling my attention (How do I create a video for my conference presentation? How do I choose between the many sidebar topics that are piquing my curiosity? How do I turn down any of the multitude of online learning and community opportunities available?), with what needs to be done (attending to student needs, trying to create a rich online community for my students, grading, reading, writing).

I have come to better appreciate the need for self-care. I have been building a supportive online community with exciting faculty committees and with multiple online writing groups. I have been learning to say no to opportunities that don't further my personal growth or academic goals. Perhaps most importantly, I am realizing that to create a caring environment for students I also involves creating a caring environment for their instructor (Bali, 2021; Costa, 2021).

Because I have never prepared to teach online without being in a pandemic, I can't say with any certainty the ways in which the pandemic has altered the online teaching experience. As I reflect on my experiences, however, I can make some observations. During my first online course in May 2020, I felt a

sense of comradery from the students – online learning was new to most of us, there was a sense of fun. Even with the underlying stresses and uncertainties, there was a “let’s get through this together” approach. By September, however, everyone knew that we had a long road ahead. The virus was better understood but there was more divisiveness, a growing fatigue, and a consistent underlying stress. The collective trauma and the growing loss of life seemed to wear on the spirits of instructors and students, increasing the need for gentle interactions and lessening the need for strict adherence to rigorous policies.

Looking Forward

As I finish preparation for the upcoming semester, I’m starting to look forward future courses and ways that I can continue to improve my practice for my current and future students. As I read the literature and learn from academics whom I admire, I have come across concepts that were new to me, some important considerations that will help me to improve my courses, and concepts that I am now learning more about and that will inform my future teaching.

Given the year that we have all just experienced, I think that trauma-informed pedagogy will be important for helping our students, and ourselves, create successful learning experiences (e.g., Imad, 2020). Trauma-informed pedagogy recognizes the effects of stress on the body and brain and the effects of emotions on learning. I am incorporating these concepts by considering Fallot and Harris’ (2009) five pillars of trauma-informed care: physical and emotional safety, trustworthiness, maximizing students’ control and choice, collaboration, and empowerment and skill-building (pp. 7-10). I am beginning to focus on these elements by continuing to foster a collegial and supportive atmosphere, by adding flexibility with due dates and participation modalities, and by offering additional opportunities for students to collaborate on understanding the course readings.

My ongoing goals include continuing to learn more about World Englishes and decolonizing academic writing. I am also improving my research methods course by expanding my focus on including research methods scholars of colour.

My husband had his first dose of the vaccine today and I hope to have mine within the next couple of weeks. I am optimistic that the end of the pandemic is in sight. As a result, I am thinking through the lessons I have learned over the pandemic and reflecting on which of the changes I’ve made should continue with me after we are able to be back in the classroom with our students (e.g., McMurtrie, 2021). The accessibility provided by online education leads me to believe that a hybrid model might continue to have some advantages in the future. I have a feeling, however, that of the skills I’m building, the ability to focus on supporting and connecting with my students will be the most valuable. I’m looking forward to continuing this higher education pedagogical adventure.

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PUBLICATION GUIDELINES

The journal (*JISTE*) publishes articles by members of the International Society for Teacher Education (ISfTE). Exceptions are made for a non-member who is a co-author with a member, or who is invited to write for a special issue of the journal, or for other special/specific reasons.

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- ☐ Manuscript length, including all references, tables, charts, or figures, should be 3,000 to 5,000 words. **Maximum length is 6,000 words.** Shorter pieces of 1500-3,000 words, such as policy review or critique papers are welcomed.
- ☐ All text should be double-spaced, with margins 1 inch (2.5 cm) all around and left justified only.
- ☐ Paragraphs should be indented using the “tab” key on the keyboard. No extra spacing should be between paragraphs.
- ☐ Tables, Figures, and Charts should be kept to a minimum (no more than 4 per article) and sized to fit between 5.5 x 8.5 inches or 14 x 20 cm.
- ☐ Abstract should be limited to 100-150 words.
- ☐ Include four or five keywords for database referencing; place immediately after the abstract.
- ☐ Cover page shall include the following information: Title of the manuscript; name(s) of author, institution(s), complete mailing address, email address, business and home (mobile) phone numbers, and fax number. Also on the cover page, please include a brief biographical sketch, background, and areas of specialisation for each author. Please do not exceed 30 words per author.

Book and Other Media Review Submission

Reviews of books or other educational media are welcome. Either the review or the item reviewed must be by a current member of ISfTE. Reviews must be no longer than 1000 words.

Annotation of Recent Publications by Members Submission

ISfTE members may submit an annotated reference to any book which they have published during the past three years. Annotation should be no longer than 150 words.

SUBMISSION REQUIREMENTS

It is preferred that articles be submitted directly to the editor, Leanne Taylor at leanne.taylor@brocku.ca. To submit an article by email, send it as an attachment using MS Word, if at all possible. You may also submit by mail by sending the article on either a computer disk or flash drive. Storage items will not be returned.

Manuscripts and editorial correspondence for JISTE 25.2., 2021 and JISTE 26.1., 2022 should be directed to:

Leanne Taylor, Editor, *JISTE*
Faculty of Brock University
1812 Sir Isaac Brock Way
St. Catharines, Ontario,
Canada L2S 3A1
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Future Issues and Submission Deadlines

2021 (Volume 25, Number 2)

Open issue Members of ISfTE and scholars outside the ISfTE organization are invited to submit articles for this issue. Members are encouraged to co-author articles with their students or colleagues who may not be members of ISfTE. Authors who are not members of ISfTE may submit articles for this open issue. In case their articles are accepted for publication, the authors must pay membership fee to ISfTE. Book reviews and reflection papers are also invited.

Submission deadline: September 1, 2021 – Publication by December 2021

2022 (Volume 26, Number 1)

Open issue Members of ISfTE and scholars outside the ISfTE organization are invited to submit articles for this issue. Members are encouraged to co-author articles with their students or colleagues who may not be members of ISfTE. Authors who are not members of ISfTE may submit articles for this open issue. In case their articles are accepted for publication, the authors must pay membership fee to ISfTE. Book reviews and reflection papers are also invited.

Submission deadline: February 1, 2022 – Publication by July 2022

Front Cover

These institutions' logos appear on the front cover of this issue: University of Brock University, Canada sponsored the ISfTE seminar in 2019. The other institutions – Weber State University, and Aarhus University – support *JISTE* with their on-going sponsorship and/or the support of the work of the editors, officials of ISfTE . If other institutions would like to participate, please contact the journal's editor, Leanne Taylor.

Brock University is a public research university in St. Catharines, Ontario, Canada. Brock offers a wide range of programs at the undergraduate and graduate levels, including professional degrees. Brock was ranked third among Canadian universities in the undergraduate category for research publication output and impact indicators in 2008.

Aarhus University is the second oldest university in Denmark. It is also the largest university in the country with over 43,000 students. It offers programmes in both undergraduate and graduate studies. Although the main campus is in the city of Aarhus, Denmark, the university has small campuses in Copenhagen and Herning.

Weber State University in Ogden, Utah, United States, was founded in 1889. It is a coeducational, publicly supported university offering professional, liberal arts, and technical certificates, as well as associate's, bachelor's, and master's degrees. Currently, over 28,000 students attend the university.

