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Contact Info

International Journal of Studies in Education and Science (IJSES)

Email: ijsesoffice@gmail.com

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New Studies in Mathematics Trails

Joerg Zender, Iwan Gurjanow, Adi Nur Cahyono, Matthias Ludwig

Abstract

The paper is about new technological approaches to mathematics trails and current developments in the empirical research on mathematics trails. For a long time, maths trails have been used for the popularization of mathematics. Therefore previous research has focused on motivational aspects and the change of mathematical beliefs. With the successful shift from pencil-and-paper maths trails to mobile devices and new technology came new ways to collect data and perform research on maths trails. Besides the classical maths trail activity, students show more motivation towards mathematics because of mobile devices and tasks that illustrate the usefulness and possible mathematics applications. Furthermore, walking a maths trail leads to a better mathematical performance than having a regular lecture without going outdoors or such activity. It affects long-term memory and intrinsic motivation positively.

Keywords: Handheld devices, Mathematics activity, Mathematics trail, Outdoor education

Introduction

At first sight, a mathematics trail seems to be a very non-digital experience for creators and learners. As described in the 1980s, the classic maths trail is activities outside the classroom, where a small group walked through the neighborhood and solved mathematical problems at specific objects (Blane, 1989; Lumb, 1980). On second thought, mathematics trails will prove to be an excellent example of how a non-digital activity can be augmented with digital technology and become a more motivating and better learning environment. This paper will show the first steps towards a symbiosis of analogue and digital learning and how they can complete and benefit from each other. Two studies have been conducted to examine these benefits, the first one in Indonesia and the second one in Germany.

Why running a maths trail? It is recommended, for example, by the British department of education and skills to do more lessons outside (DfES, 2006). Maths trails are an excellent opportunity to integrate an outdoor lesson into the mathematics curriculum. Walking outside exposed to daylight may help to prevent the effects of prolonged sitting (Lurati, 2018) and myopia (short-sightedness), as suggested by the World Health Organisation (2015). Mathematics trails are a great way to popularize mathematics (Blane, 1989). So, it is about health and fun. Nevertheless, what is it about the learning outcome? Is it worth the effort to create a maths trail and go outside with the pupils?

Digital technology can reduce the effort to create a maths trail. The significant change from the “old” web technologies to Web 2.0 was social media possibilities. The internet became a participatory web, where users generate content and communicate (Blank & Reisdorf, 2012). The participatory aspect is especially interesting for educational resources since key users like teachers getting paid from public money and is not dependent on making money with their content. On the contrary, most teachers are willing to share their material free with others. Geogebra Tube, for example, has millions of free worksheets generated from users. Authoring of maths trails with digital tools is not the focus of this article; nevertheless, the following articles touching this theme: Gurjanow, Ludwig & Zender (2017, 2018) and Jablonski, Ludwig & Zender (2018).

Since a maths trail is a part of outdoor education, it makes sense to look at mobile devices, like Wijers, Jonker and Drijvers (2010) are recommended to use to support and enrich outdoor learning. Going on a maths trail could greatly benefit from using mobile devices because they allow learning to occur in an authentic context and extend to real environments. Mobile devices can be taken to the objects and support the users with maps, hints, feedback and communication tools. Although mobile devices and computers are widely used in every aspect of our daily lives (especially among pupils), they played a minor role in education (Chen & Kinshuk, 2005). However, the distribution of mobile devices and mobile internet became unique. Today 5.2 billion people have a mobile device, of which 3.8 billion have access to mobile internet. The GSM Association expects 5 billion people to have a mobile internet connection in 2025 (GSM Association, 2020).

MathCityMap

At the Goethe University of Frankfurt am Main we started the MathCityMap project (MCM), which combines traditional maths trails with the opportunities of new technologies as listed above. It was not the first attempt to connect new technology with maths trails. In the year 2000, the US Department of Education and Texas Instruments published a website called “The National Math Trail”, where users could upload their maths trail guides as .doc or .pdf files (original site was: <http://www.nationalmathtrail.org/>). Something similar happened sometime later in Canada with “Canadian Math Trail” (<https://brocku.ca/cmt/>). Both websites have been active from 2000 to 2002 but then stopped generating new content, “The National Math Trail” vanished in 2010 and could only be found via the Internet Archive.

Law and So (2010) used mobile devices to read QR Codes with tasks placed at the object. Chen (2013) used the chat functions of Google Buzz to allow pupils to communicate with their teacher during a maths trail activity.

In addition to these approaches, the MathCityMap project (MCM) was established at the Goethe University of Frankfurt in 2012 (Jesberg & Ludwig, 2012). Still, it took until 2016 to finally launch a web portal and a mobile application. MathCityMap now provides users with a web portal as a GUI for a database of maths trail tasks and routes and an application for smartphones (iOS and Android) to compile this data into a mobile trail guide (see figure 1). The app gives feedback on solutions (wrong/right), and the users can display hints. Following Aebli’s (1983) ideas, giving direct feedback is essential, so no wrong solution is without comment.

Furthermore, with a connection between the web portal and the app, it is now possible to create a digital classroom, a web session where the pupils can join their smartphones (Ludwig, Baumann-Wehner, Gurjanow, Jablonski, 2019). Simultaneously, the teacher can communicate via the web portal and see their progress and location via GPS (if shared by the pupils). MathCityMap has been part of the Erasmus+ projects MoMaTrE and MASCE³.

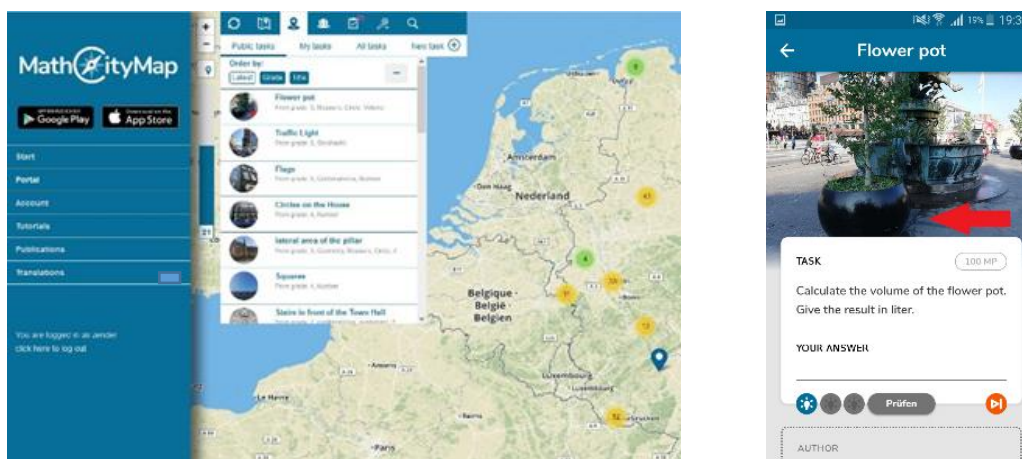


Figure 1. MathCityMap Web Portal (Left) and Smartphone Application (Right)

Theoretical Framework

The findings in this paper are mainly related to the learning of mathematics using the MCM app. Therefore, the aspect of teaching mathematics using MCM will not be at the core of the following paragraphs. We recommend the article by Barbossa and Vale (2020).

Mobile Learning of Mathematics

Park (2011) defines mobile learning as learning while on the move by using portable electronic devices. The learning is facilitated by easy-transportable digital tools, such as smartphones or tablets. In contrast to learning inside the classroom, pupils are not bound to a single fixed location. If, in addition to using a digital tool, the learning is also associated with an object of the real world, then Lonsdale, Baber, Sharples and Arvanitis (2004) speak of context-aware ubiquitous learning (u-learning). U-learning is considered a subcategory of mobile learning. Since MCM uses mobile devices to facilitate mathematics learning at predefined objects of the real world, it can be categorised as a tool for u-learning. Using real-life objects for mathematics learning holds many theoretical benefits regarding students' motivation and performance, which will be elaborated more deeply in the following paragraphs.

The role of technology in the outdoor context helps pupils become mathematically active by presenting tasks prepared by the author of a maths trail. Therefore, this approach is also called *artefact-led* mobile learning (Donevska-Todorova, 2020). Beyond that, the MCM app supports learners in their independent solution process by offering predefined hints and validating entered answers based on a stored solution set. Since the studies

presented in this article generally focus on pupils' learning outcomes and motivation using a digital tool for the outdoor learning of mathematics, the support and feedback system's contribution remains examined.

Motivation

The self-determination theory by Ryan and Deci (2000) makes an essential distinction between two types of motivation: intrinsic and extrinsic motivation. According to Fredricks, Blumenfeld and Paris (2004), intrinsic motivation holds desirable learning potentials, reflected in personal, cognitive and emotional engagement. Activities need to fulfil three psychological needs to be perceived as intrinsically motivating: autonomy, competency and relatedness (Ryan & Deci, 2000). Using technology to learn mathematics outdoors also means giving students more control over the learning process. Compared to regular maths classes, they have to make more decisions, such as reaching the task location, the approach to solve the task and how to interact with the MCM application, which increases autonomy. The MCM app supports pupils with feedback and stepped hints to help them work independently on the maths trail tasks and feel more competent. However, this support does not automatically mean that every pupil will be able to solve all tasks. The social form of group work meets the psychological need for relatedness and is often the first choice for out-of-school learning. It can be concluded from the above that u-learning with MCM offers a good starting point for motivating learning.

Learning Growth

Besides the motivational advantages of u-learning, other potentials speak for an increase in learning when completing a maths trail. First, objects of the real world can be experienced first-hand with many senses. In contrast to secondary experiences, i.e. second-hand experiences conveyed utilizing media or narratives, primary experiences are more memorable because they are embedded in an associative environment (Kovalik & Olsen, 1994). Especially the connection between enactive actions (measuring objects), iconic representations (e.g. creating a sketch of the object) and the symbolic representation (e.g. formula of the volume of an object) is considered valuable for learning mathematics outdoors (Ludwig, Jesberg & Weiß, 2013). Second, at out-of-school places of learning, pupils usually find a complex initial situation, which offers them freedom for their discoveries and active exploration of the subject matter (Killermann, Hiering & Starosta, 2008). Discovering and exploring are typical activities of constructivist learning environments, which are said to have the potential to produce knowledge that can be accessed for longer (Karpa, Lübbecke & Adam, 2015). Third, it is easy to pose authentic questions using real-life objects. Using the MCM application, additional information about the object can further enhance the task's authenticity. Vos (2015) claimed that an authentic task in mathematics should have an out-of-school origin and be certified by experts as a task of their field. The real-life object on a maths trail gives the out-of-school origin. Our case's certification is understood to ask the obvious question towards the object, not an absurd one. For an advertisement pillar (a cylindrical object), it is obvious to ask for the lateral area. That is the area the advertisement is displayed. However, it would sound absurd to ask for the surface area, which got nothing to do with its function. However, the surface area can be calculated with the same measurements as the lateral area.

Previous Research on Mathematics Trails

Over the last 30 years, there have been a few studies on mathematics trails. Probably the first was done by Kaur (1992) in Singapore. Kaur (1992) reported that pupils are more motivated by maths trails since they found it more meaningful and fun than regular classroom lessons. Later, Toh and Lim (2006) let pupils create maths trails in Singapore. These pupils have had fun and gained a new perspective on mathematics. Callenberg and Johansson Andersson (2014) did interviews with pupils after running a maths trail in Sweden. The pupils stated that a maths trail is fun and helped them to discover mathematics in the environment.

Finnland, Rikala and Kankaanranta (2014) are the first to research a technology-supported maths trail. They were inspired by Law and So (2010) and placed QR Codes on objects which led to mathematical tasks. The pupils' teacher reported that the pupils did better in the next exam although they had a shorter time to practise than usual. In Germany, Buchholtz (2017) and Buchholtz and Armbrust (2018) did two studies with maths trails created with the mobile app Actionbound. In both studies, the pupils have been highly motivated through the app and maths trail.

Since maths trails have been rooted in the popularization of mathematics, the previous studies had focused on aspects of motivation and beliefs. All of them could find positive effects amongst all age groups from primary to middle and secondary school. However, all of them were qualitative, with a relatively small number of participants (20 to 50). Since motivation and performance are related (Chiu & Xihua, 2008), it seems obvious to research the effects of maths trails on pupils' performance (More details on the research and historical development on maths trails can be found at Zender (2020)).

There is a gap. What is missing is quantitative research, especially on the performance regarding mathematics trails. We will now present the studies of Cahyono (Indonesia) and Gurjanow and Zender (Germany) concerning pupils' performance and motivation.

Research Question

How does a mobile app supported maths trail affect the learning outcome and motivation of pupils?

Method

The mathematics education group of the Goethe University of Frankfurt A has conducted two studies. The first one took place in Semarang, Indonesia (Cahyono, 2017). The second one took place in Frankfurt am Main, Germany (Zender, 2019). The concept of ecological validity primed both studies. The studies should take place as close to the actual situation in which maths trails are used as possible so that the results reflect the potential effects of maths trails in schools. Consequently, the Indonesian study strongly involved the teachers in creating maths trail tasks and the German study was done during the school lessons inside the curriculum and not as an add-on.

The Indonesian study involved 520 pupils from seventh to ninth grade and nine of their teachers from nine different schools. The research was conducted from 2014 to 2016. Cahyono programmed an own version of the MathCityMap app, with similar functions and behavior, since the MCM project has not launched the official version to that point (see Figure 2).

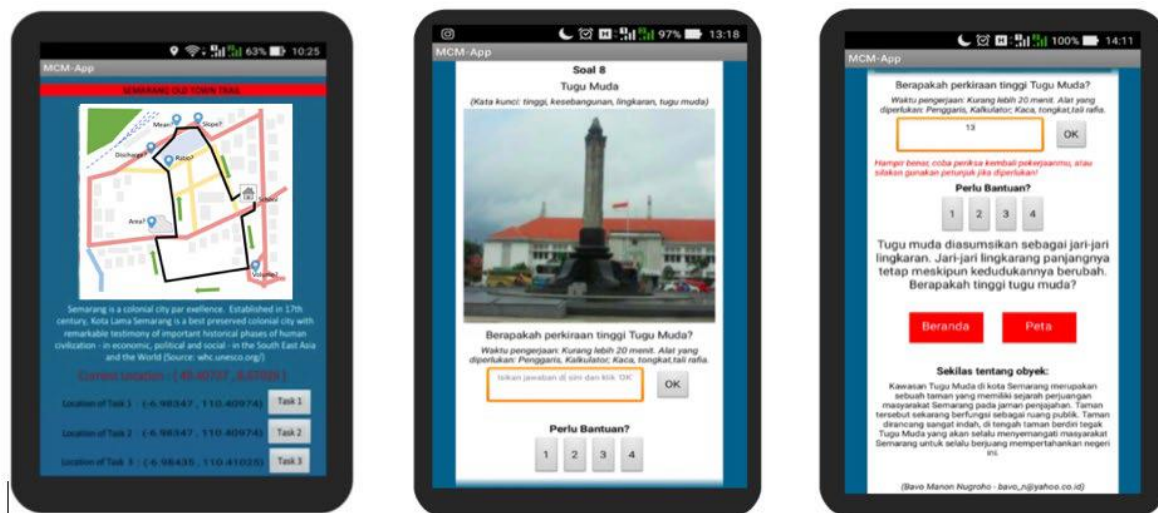


Figure 2. Indonesian Version of the App for the Indonesian Study

The pupils were divided into an experimental group of 272 pupils and a control group of 248 pupils. We choose one class for both of the groups from each school. All pupils wrote a pretest and a post-test. The same teacher taught experimental and control groups at each school with the same topic and subject matter but with different interventions. The experimental group took part in a maths trail for two or three lessons (45 minutes each), while the control group had regular lessons. Before and after the maths trail, the pupils completed a questionnaire with the Situational Motivation Scale (SIMS), which based on the self-determination theory (Guay, Vallerand, & Blanchard, 2000) based on the works of Ryan and Deci (2000). Every school had its trail, created by the researcher in cooperation with teachers from that school. The pupils ran the maths trail in groups of three. Four schools ran the maths trail a year later, and the pupils completed the SIMS questionnaire again.

The German study involved 629 pupils from grade nine and 23 of their teachers. The research was conducted in 2016 and 2017 and included topic-specific trails about cylindrical tasks. We choose a control/experimental group design. Therefore, the pupils had to be divided into these groups. The division was done after a general test on mathematics knowledge to create two equally good groups. We choose the VERA8 test from 2010 for that purpose. VERA8 is a nation-wide exam in eighth grade to test the mathematics knowledge of all pupils in Germany. It takes 90 minutes and consists of various tasks regarding competencies, themes and levels of difficulty.

The control group stayed in the classroom and had regular lessons about cylinders, including working with the textbook (see figure 3). The experimental group had four lessons less (180 minutes) than the control group. During this time, they went outside twice for a maths trail at the university for 90 minutes (for example, see

figure 4). The maths trail included tasks corresponding to typical textbook task on cylinders (asking for the volume, surface area and lateral area of a cylinder). After the maths trail, they completed a survey from the Intrinsic Motivation Inventory (IMI) with the subscales enjoyment, usefulness, perceived competence, and pressure connected to Ryan and Deci's motivation theory (2000).

The experimental group ran the maths trail with the MathCityMap application on smartphones owned by the university. All actions and inputs have been logged and used for research with the knowledge and consent of the participants (figure 5 shows such a log file). The log file consists of information like where have the pupils been (geodata), at which time (timestamp) and what have they entered in the MCM app. It was logged when a task or a hint was opened, when a solution was entered, which solution was entered and if that solution was wrong or right. From this data, it is possible to recreate the sequence of events along the maths trail. Learning Analytics became possible with this data.

After the lessons on cylinders, both groups, the control and experimental group, wrote the same test with cylinder tasks which have been various textbook tasks. Half a year later, the pupils wrote a follow-up test with the same tasks as the first test.



16. The Ashtray on the right side is made of Brass (measurements are in mm). 1 cm^3 of Brass weights 8,6g. What is the weight of the Ashtray?
17. An advertising pillar (see left side) has a diameter of 1,30 m. It is 3,20 m high. The base of 50 cm should not be covered. 1 m^2 advertising aerea costs 99 Euro, including taxes.

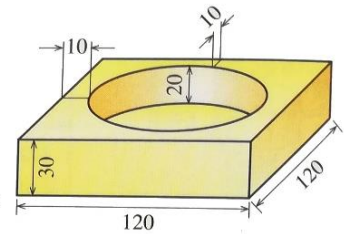


Figure 3. Part of a German Textbook Page with Tasks on Cylinders (Translated)

1. Task: Memorial of Alzheimer



What is the weight of the plate? 1 m^3 steel weights 7900kg. Give the solution in kg.

Solution:



Figure 4. Sample Tasks from the Study about the Weight of a Cylindric Plate

39	2017.06.21.10.29.48	Starting Map View
40	2017.06.21.10.29.57	Start from task: (814) Steinkreis
41	2017.06.21.10.29.59	Open preview dialog for task: (814) Steinkreis
42	2017.06.21.10.30.02	Close preview dialog for task: (814) Steinkreis
43	2017.06.21.10.32.57	Open preview dialog for task: (814) Steinkreis
44	2017.06.21.10.33.03	Open task view: (814) Steinkreis
45	2017.06.21.10.33.04	Task Details open: (814) Steinkreis
46	2017.06.21.10.41.33	Show hint1 for task: (814) Steinkreis
47	2017.06.21.10.42.11	Show hint2 for task: (814) Steinkreis
48	2017.06.21.10.43.02	Show hint3 for task: (814) Steinkreis
49	2017.06.21.10.51.35	Checking answer '1.61' for task: (814) Steinkreis
50	2017.06.21.10.51.35	Task solved' with 100 points for task: (814) Steinkreis

Figure 5. Sample from a Log File. Every Action Performed by the App is Listed with a Timestamp.

Results

The Indonesian study found no significant difference between the control and experimental group regarding the pretest on mathematics ($p = .35$ for a two-sided t-test). However, the post-test has a significant difference between the two groups ($p < .000$, $d = 1.2$). However, it is worth changing the point of view and do a paired t-test for both groups between the pretest and post-test for the control group ($p < .000$, $d = 0.354$) and the experimental group ($p < .000$, $d = 1.542$) (see Table 1).

Table 1. Differences between the Pretest and the Post-test (Indonesian Study)

Group		<i>N</i>	<i>M</i>	<i>SD</i>	<i>P</i>	<i>D</i>
Control	Pre	248	62.04	11.94	0.000	0.354
	Post	248	66.29	12.06		
Experimental	Pre	272	63.01	11.73	0.000	1.542
	Post	272	79.28	9.22		

After the performance, the motivation scores are also impressive. The Self-determination Index at the beginning had a mean value of -2.568 and a standard deviation of 0.183. Overall, 218 of all pupils had a negative score. After the maths trail activity, the mean SDI score became 7.318, with a standard deviation of 2.926 and not even one person with a negative score. The four schools that made the maths trail again after one year got nearly the same results as before. A two-sided t-test revealed a significant difference between before the maths trail and after, but the second trail did not raise the SDI again; it remains on a high level. In an open-answer questionnaire, nearly a quarter of the pupils stated that mobile technology was the most motivating factor. They reported how much fun they had to locate the tasks, and so on.

The German study could first show that the division into the control and experimental group succeeded in general mathematical performance. The scores of the VERA8 test are normally distributed, and a two-sided t-test could not show a significant difference between the two groups ($p = .93$). Comparing the control and

experimental group in the first test after the lessons on cylinders, the experimental group did significantly better ($p < .000$) with a small effect ($d = 0.48$). The comparing test after the lessons is not normally distributed; therefore, the Mann-Whitney test was used. Regarding the follow-up test, only a few classes agreed to write the test after half a year. For these classes, we used the paired t-test to see if there is a change in the individual results after half a year without any lesson about cylinders. The experimental group scored nearly the same as before, giving us a p-Value of .384 and an effect size of $d = 0.034$. However, the control group did score worse than before; the p-Value is .000 and the effect size $d = -1.15$ (see Table 2 for details).

Table 2. Differences between the First Test and the Follow up Test (German Study)

Group	<i>N</i>	<i>M</i>	<i>SD</i>	<i>P</i>	<i>D</i>
Control	37	-1.838	1.860	0.000	-1.150
Experimental	42	0.071	1.538	0.384	0.034

For a more detailed view of the learning process, the smartphones' log files (see Figure 5) are analyzed. As mentioned above, we cannot only divide into control and experimental group. The data reveals who did successfully solve a task in the experimental group. Since the cylinder tasks on the trail correspond to typical textbook tasks, we can compare the success rate of the comparing test for pupils in the control group and the experimental group and have solved no corresponding task, one corresponding task or two corresponding tasks. The cross-table shows that those pupils who have solved a maths trail task performed better on a similar task in the comparison test than the pupils from the control group and the pupils from the experimental group who have not solved such a task during the maths trail. The effect of the treatment can be traced down to the single maths trail tasks (see Table 3 for an example). The odd ratios are between 2 and 3 for nearly every maths trail task (one has an outstanding odds ratio of 6). It was two or three times more likely to solve a textbook task for a pupil who has met a similar maths trail task than a pupil who has only worked with textbook tasks before.

Table 3. Effects on Solving Maths Trail Tasks to Solving Textbook Task

	<i>Control</i>	<i>Related tasks in the treatment</i>		
		<i>None solved</i>	<i>One solved</i>	<i>Both solved</i>
Textbook task solved	10%	7%	23%	33%
Textbook task not solved	90%	93%	77%	67%

Regarding the IMI survey: with mean values of 4.7 and 4.5 (scale: 1 – 7), the subscales (1) enjoyment and (3) usefulness are significantly higher than the theoretical average value of 4 ($p < .01$). The perceived competence (2) mean score of 3.9 can be considered average. The pressure subscale (4) mean value (2.7) is lower than average. The subscales indicate that the overall experience of walking a maths trail supported by a smartphone application was perceived positively regarding motivational aspects. Students enjoyed the activity and had the feeling that it was helpful to them. In contrast, Fredricks and Eccles (2002) found that students general interest in mathematics decreases over the school years. In grade nine, the mean value is 3.7 on a 7-point Likert scale.

Discussion

Walking a maths trail with the support of the MathCityMap application increases the pupils' performance and motivation. It has significant effects in the short- and long-term. However, it cannot be directly concluded that this all came from the mobile technology used. Both studies did not try to run a maths trail without technology to compare that to a mobile app supported maths trail. That is an idea for further research. Nevertheless, we think that we have valuable clues to state that mobile technology got its share in the increase in performance and motivation. First of all, mobile technology made it possible for a whole class to do a maths trail "on their own". Because the app gives hints and feedback, the teacher does not have to be around in most cases when the pupils solve a task. Furthermore, being on their own implied an individual autonomy for the pupils, known as one pillar of intrinsic motivation, following Ryan and Deci (2000).

The second pillar of intrinsic motivation is perceived competence. Taking a look into the log files, pupils could only solve 37% of all opened tasks on the first attempt, but they solved 78% of them in the end. The difference of 41% is quite significant. Without technology, this 41% would have never solved the task right. They would produce a solution, and later on, in class or so, they would get feedback. Mobile technology offers the chance to get feedback on the solution while being at the object. In the case of negative feedback, pupils can try to solve the task again, which is successful in 41% of all tasks. The feedback itself makes it possible to perceive competence. It doubles the success rate, which is again very important for the performance since we know about the significant effects of solving a maths trail task on the classroom performance.

In the introduction, we wrote about the symbiosis of analogue and digital learning. With the support of a mobile app, the maths trail did not lose anything. All positive aspects stay the same. It is still an outdoor activity; pupils are going out, moving around, being in groups, discuss, measure and calculate. Furthermore, now the technology does not replace that but enriches it with meaningful aspects like hints, feedback, an integrated map where the tasks can be found and communication with the teacher.

Both parts, the analogue and the digital one, contribute to the success in a way the other cannot. Going out, touching the objects, seeing them, measuring and counting are analogue experiences that can hardly be replaced entirely digital. On the other hand, communication, hints and automatic feedback can hardly be replaced by analogue technics. We have not yet touched the themes of authoring, collaboration and sharing amongst teachers, which also became a lot easier with digital technology.

Summary

In both countries, Indonesia and Germany, maths trail activities instead of regular lessons increase the learning outcome. It is essential to point out that these maths trails are not add-ons to the regular lesson, no additional training program, but instead of regular lessons. We do not know to what extent the increase is possible and when ceiling effects will appear. Both studies concluded that the experimental group's mathematical performance was better than the control group shortly after the treatment. Besides, in Germany, the study shows

that this is a long-term effect. The results have shown that the control group has forgotten what they have learned in class after half a year while the experimental group had a stable memory of what they have learned.

Besides all the positive aspects of a maths trail that could explain the increased performance, like the movement, the outdoor experience and the inactive learning, the results reveal that it strongly depends on the tasks themselves if the performance increases. Only if the pupils solve a similar task in the maths trail solved the related task in the comparison test significantly more often, which is somewhat surprising. Staying inside the classroom and performing textbook tasks have less effect on solving such textbook tasks than on a maths trail with similar tasks. We have to recall that the pupils will probably be able to work on more tasks inside the classroom. The average was eight solved tasks for the four outdoor lessons, two tasks in 45 minutes. This phenomenon was also noticed before by Rikala and Kankaanranta (2014). The data confirm the teacher's impression; pupils did practice less outdoors but got better exams afterwards. We can conclude that the maths trail setting increases the learning potential of the tasks. However, we do not know what would have happened if we had a control group to solve the outdoor tasks on paper inside the classroom. We need further research to uncover the reasons for success regarding maths trail tasks.

Regarding motivation, in both countries, the motivation scores were high. In Germany, the Intrinsic Motivation Inventory was used and revealed a higher motivation score for the experimental group than expected from the average pupil at that age, reported by the literature. The Indonesian study used the Self-Determination Index. The values of the experimental group were significantly higher than those of the control group. The follow-up maths trail activity and the survey one year later show that increased motivation is also a long-term effect. All of these findings are in perfect alignment with the previous qualitative studies before.

Overall, we highly recommend going out more often during the lessons, for example, to run a maths trail. The pupils benefit in ways of health but also increased performance and motivation. Researchers all over the world have found positive effects. Teachers can create maths trails everywhere. The maths trails are not limited to a specific place or structure, nor are special tools needed. This learning environment can be used in every country to go out with the pupils (at least to the schoolyard). Pupils can run maths trails with pen and paper or with new technology. Since mobile devices became common, it is possible to provide mobile supported maths trails for pupils. The technology enriches the maths trails with an exciting and motivating component.

Further research is needed on the long-term effects, both in motivation and performance. Generally, more research on performance is required to spot the reasons for a maths trail's success. Moreover, we are entirely missing research concerning effects on fields like spatial imagination, for example. Mathematics trails are an exciting learning environment that should be enriched by digital technology. A field we just have begun to touch yet.

References

Aebli, H. (1983). *Zwölf Grundformen des Lehrens: eine allgemeine Didaktik auf psychologischer Grundlage*


- [*Twelve basic forms of teaching: a general didactics based on psychology*]. Klett-Cotta.
- Barbosa, A. & Vale, I. (2020). Math Trails through Digital Technology: An Experience with Pre-Service Teachers. In M. Ludwig, S. Jablonski, A. Caldeira, & A. Moura (Eds.), *Research on Outdoor STEM Education in the digiTal age. Proceedings of the ROSETA Online Conference in June 2020* (pp. 47-54). Münster: WTM.
- Blane, D. (1989). Mathematics trails. ICMI Papers on The Popularization of Mathematics. Leeds, UK
- Blank, G. & Reisdorf, B. C. (2012): *The Participatory Web*. Information, Communication & Society, 15:4, 537-554
- Buchholtz, N. (2017). How Teachers Can Promote Mathematising by Means of Mathematical City Walks. In G. A. Stillman, W. Blum & G. Kaiser (Hrsg.), *Mathematical Modelling and Applications: Crossing and Researching Boundaries in Mathematics Education* (49–58). Cham: Springer International Publishing.
- Buchholtz, N. & Armbrust, A. (2018). Ein mathematischer Stadtpaziergang zum Satz des Pythagoras als außerschulische Lernumgebung im Mathematikunterricht [A mathematical city walk on the Pythagorean theorem as an out-of-school learning environment in mathematics education]. In S. Schukajlow & W. Blum (Hrsg.), *Evaluierte Lernumgebungen zum Modellieren* (143–163). Wiesbaden: Springer Fachmedien Wiesbaden.
- Cahyono, A. N. (2017). *Learning mathematics in a mobile app-supported math trail environment* (Doctoral dissertation, Johann Wolfgang Goethe-Universität in Frankfurt am Main).
- Callenberg, N. & Johansson Andersson, J. (2014). *Math trail: Enstudie om elevers uppfattningar av mathtrail i matematikundervisning [Math trail: A single study of students' perceptions of math trail in mathematics teaching]*. Högskolan i Halmstad, Sektionen för lärarutbildning (LUT).
- Chen, H.-W. (2013). Applying Social Networking and Math Trails to Third Grade Mathematic Class. *International Journal of Innovation, Management and Technology*, 4 (3), 361–365.
- Chen, J. & Kinshuk, J. (2005). Mobile technology in educational services. *Journal of Educational Multimedia and Hypermedia*, 14 (1), 91–110
- Chiu, M. M. & Xihua, Z. (2008). Family and motivation effects on mathematics achievement: Analyses of students in 41 countries. *Learning and Instruction*, 18 (4), 321–336.
- Department for Education and Skills (DfES). (2006). *Learning outside the classroom manifesto*. DfES Nottingham.
- Donevska-Todorova, A. (2020). *Mobile learning of mathematics with apps for math trails*. Manuscript Submitted for Publication.
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School Engagement: Potential of the Concept, State of the Evidence. *Review of Educational Research*, 74(1), S. 59-109.
- Fredricks, J. A., & Eccles, J. S. (2002). Children's competence and value beliefs from childhood through adolescence: Growth trajectories in two male-sex-typed domains. *Developmental psychology*, 38(4), 519.
- GSM Association. (2020). *The Mobile Economy 2020*. GSMA Head Office. United Kingdom.
- Guay, F., Vallerand, R., & Blanchard, C. (2000). On the assessment of situational intrinsic and extrinsic motivation: The Situational Motivation Scale (SIMS). *Motivation and Emotion*, 24(3), 175–213
- Gurjanow, I., Ludwig, M., & Zender, J. (2017). What influences in-service and student teachers use of MathCityMap?. In Dooley, T. & Gueudet, G. (Eds.). *Proceedings of the Tenth Congress of the European*

- Society for Research in Mathematics Education*, Dublin, Ireland: DCU Institute of Education & ERME.
- Gurjanow, I., Ludwig, M., & Zender, J. (2018). Aids and Obstacles in the use of ICT - Two surveys amongst MCM users. In *Proceedings of the 8th ICMI-East Asia Regional Conference on Mathematics Education* in Taipei, Taiwan (EARCOME8)
- Jablonski, S., Ludwig, M., Zender, J. (2018). Task Quality vs. Task Quantity. A dialog-based review system to ensure a certain quality of tasks in the MathCityMap web community. In: H.-G. Weigand, A. Clark-Wilson, A. Donevska-Todorova, E. Faggiano, N. Grønbaek & J. Trgalova (Eds.). *Proceedings of the Fifth ERME Topic Conference (ETC 5) on Mathematics Education in the Digital Age (MEDA) 5-7 September 2018*, Copenhagen, Denmark, S. 115-122.
- Jesberg, J., & Ludwig, M. (2012). MathCityMap—Make mathematical experiences in out-of-school activities using mobile technology. In Proc. ICME (Vol. 12).
- Karpa, D., Lübbecke, G., & Adam, B. (2015). Außerschulische Lernorte: Theoretische Grundlagen und praktische Beispiele [Outdoor Learning: Theoretical foundations and practical examples]. *Schulpädagogik heute*(11).
- Kaur, B. (1992). *Attitudinal outcomes from environmental activities*. 6th Annual Conference of the Educational Research Association. Singapore.
- Killermann, W., Hering, P., & Starosta, B. (2008). *Biologieunterricht heute: Eine moderne Fachdidaktik [Biology teaching today: A modern subject didactics]*. Donauwörth: Auer.
- Kovalik, S., & Olsen, K. (1994). *ITI: The Model. Integrated Thematic Instruction. Third Edition*. Covington Square, 17051 SE 272nd Street Suite 18, Kent, WA 98042: Books for Educators.
- Law, C.-Y. & So, S. (2010). QR Codes in Education. *Journal of Educational Technology Development and Exchange (JETDE)*, 3 (1).
- Lonsdale, P., Baber, C., Sharples, M., & Arvanitis, T. N. (2004). A context-awareness architecture for facilitating mobile learning. In J. Attewell, & C. Savill-Smith, *Learning with mobile devices: Research and development* (S. 79-86). London: Learning and Skills Development Agency.
- Ludwig, M., Baumann-Wehner, M., Gurjanow, I., Jablonski, S. (2019). Mathe draußen: MathCityMap. Mit Aufgaben-Wizard und Digitem Klassenzimmer zum mobilen MathTrail [Math outdoors: MathCityMap. With task wizard and digital classroom to the mobile MathTrail]. *mathematik lehren*, 215, S. 29-32.
- Ludwig, M., Jesberg, J., & Weiß, D. (2013). MathCityMap – eine faszinierende Belebung der Idee mathematischer Wanderpfade [MathCityMap – the fascinating revival of the maths trail idea]. *Praxis der Mathematik*, S. 14-19.
- Lumb, D. (1980). Mathematics Trails in Newcastle. *Mathematics in School*, 9 (2), 5–5.
- Lurati, A. R. (2018). Health Issues and Injury Risks Associated With Prolonged Sitting and Sedentary Lifestyles. *Workplace Health & Safety*, 66(6), 285–290.
- Park, Y. (2011). A pedagogical framework for mobile learning: Categorising educational applications of mobile technologies into four types. *The international review of research in open and distributed learning*, 12(2), S. 78-102.
- Rikala, J. & Kankaanranta, M. (2014). Blending Classroom Teaching and Learning with QR Codes. *International Association for Development of the Information Society*, 141–148.

- Ryan, R. M. & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology*, 25 (1), 54–67.
- Toh, X. H. P. & Lim, Y. P. L. (2006). *A Pilot Study of Mathematical Investigation for the High Achievers in Mathematics*. Singapore: Chongzheng Primary School, Ministry of Education.
- Vos, P. (2015). Authenticity in extra-curricular mathematics activities: Researching authenticity as a social construct. In G. A. Stillman, W. Blum, & M. S. Biembengut, *Mathematical modelling in education research and practice: Cultural, social and cognitive influences* (S. 105-113). Cham: Springer International Publishing.
- Wijers, M., Jonker, V., & Drijvers, P. (2010). MobileMath: Exploring mathematics outside the classroom. *ZDM Mathematics Education*, 42, 789–799.
- World Health Organization. (2015). *The Impact of Myopia and High Myopia: Report of the Joint World Health Organization–Brien Holden Vision Institute Global Scientific Meeting on Myopia*. WHO Switzerland.
- Zender, J. (2019). *Mathtrails in der Sekundarstufe I – Der Einsatz von MathCityMap bei Zylinderproblemen in der neunten Klasse [Math trails in secondary school – About MathCityMap and cylinder problems in ninth grade]*. WTM Verlag für wissenschaftliche Texte und Medien. Münster, Germany
- Zender, J. (2020). On the history of mathematics Trails. In: Barbin, E., Bjarnadóttir, K., Furinghetti, F., Karp, A., Moussard G., A., Prytz, J., & Schubring, G. (Eds.) (2020). “Dig where you stand” 6. *Proceedings of the Sixth International Conference on the History of Mathematics Education*. Münster: WTM-Verlag.

Author Information


Joerg Zender

 <https://orcid.org/0000-0003-4117-6056>

University of Applied Science RheinMain
Germany


Contact e-mail: joerg@zender.xyz

Iwan Gurjanow

 <https://orcid.org/0000-0003-1678-2273>


Goethe University of Frankfurt am Main
Germany

Adi Nur Cahyono

 <https://orcid.org/0000-0002-9469-524X>

Universitas Negeri Semarang (UNNES)
Indonesia

Matthias Ludwig

 <https://orcid.org/0000-0003-1296-8898>

Goethe University of Frankfurt am Main
Germany

Teaching Preparedness of Pre-Service Teachers: Perception to Practice

Iris April L. Ramirez

Abstract

It is expected from the teacher education institution to shape pre-service teachers in responding to the innovations of the 21st century – implementing life-long learning, guaranteeing the standard of education, and coaching of people for prosperous skilled activities. Thus, the study identified the gaps between theory and practice that might have huge and vital impacts on their professional growth, possible benefits, and challenges to develop and guarantee more efficient and comprehensive teaching-learning practices for all. The study made use of phenomenological research design, specifically descriptive design using narrative analysis. The validated instrument (Questionnaire) were distributed to the respondents (n=45; Secondary Pre-service Science Student Intern) and a purposive sampling was utilized on selected Tertiary Education Institutions. Thematic analysis was applied. Several gaps emerged between theory and practice of pre service science teachers which may have vital impacts for our future educators.

Keywords: Preservice teachers, Theory, Practice, Gaps, Science education, Teaching preparedness

Introduction

It is expected from the teacher education institution to shape pre-service teachers in responding to the innovations of the 21st century – implementing life-long learning, guaranteeing the standard of education, and coaching of people for prosperous skilled activities. Concerns in arguing that there are dangers in developing instructors where abundant theory and little about practice. Actually, the division between theory and practice is nearly similar with teacher training programs, with Dewey noting the problem as way back as the early 1900s.

John Dewey (1934) grounded two of his stylish and his instructive ways of thinking on a theory of experience, with suggestions for lighting up a portion of the procedures that students utilize in gaining from their experiences. Dewey (1963) perceived that, while all students undeniably have encounters in classrooms and schools, everything relies on the nature of the experience which they have. Learning experiences are rooted from the statement of two ideals – continuity and interaction. Continuity means experiences; an individual has willpower to influence the future, both in positive and negative ways. Interaction, on the other hand is the situational outcomes on one's choice. As it were, the present situation is a component of the association concerning the past happenings and the present circumstances. For example, the experiences of an exercise will

depend on how the teacher arranges as well as facilitates the topics, in addition to the past understanding of comparable exercises and teachers.

At the national level, the need to create quality teachers is stipulated in RA No. 7722, Undergraduate Teacher Education in Higher Education Institutions (HEIs) constantly prepares prospective teachers of fundamental training area to satisfy their jobs and duties and supports quality education. In other words, teacher education institutions have the responsibility of producing globally competitive future educators who are relevant to educational community. The primary objective incorporates teacher education program that caters the needs for satisfaction in knowledge, skills, and attitude.

Further, studies on pre-service teachers are very minimal, where in fact much attention is needed. This should be highlighted as a growing concern of teacher preparation programs as it will become useful in solving practical problems as the gap concerning theory and practice in the program is widening. It was constantly indistinct for a teacher training program to characterize a hypothetical element of teaching practice. The least difficult methodology was: you will learn hypothesis during lectures and will at that point apply it on practice.

Through preceding batches of pre-service science teachers, some of the encounters expressed as difficulties include varied experiences such as tensions; different suppositions, convictions and originations of instructing and learning; fundamental comprehension of the auxiliary school culture and setting for educating and learning; collaboration with understudies; familiarity with showing abilities and systems; intelligent intuition during the underlying phases of the pre-service academic program, and functional educating resources. It points out that finishing the teacher training course in science, pre-service teachers are expected to comply with required skills and competencies in order to deal with the on-going adaptations in the 21st century classroom environment. If their competencies as teachers are adequately developed, they may be prepared to commence their roles as competent teachers. The aim of the study is to identify the gaps between theory and practice of pre-service science teachers. Results of the study may profit the Teacher Education Institutions as it may embrace real practices and reflects the needs of pre-service teachers on specific teaching characteristics. In connecting with the pre-service teachers theory and standards of teacher training, it winds up evidently that teacher instruction must draw in with the pre-service teachers' earlier understanding, developing discernments, their theoretical settings and their convictions and benefits of teaching.

Literature Review

Teaching advancement and teacher preparation program need to highlight on the best way to equip pre-service teacher and the method for improving the quality of education. Teacher preparation has been ceaselessly examining for the most ideal methods for preparing future educators to be best in the real classroom environment. It is progressively being urged to concentrate on creating in future educators who can be globally competitive.

Training today's pre-service teachers to be well-equipped educators can be a tedious job. Facilitators of teacher

trainings are challenged to craft learning that meaningfully integrates content and pedagogy to nurture the improvement of twenty-first century skills with the advancement as well as the fast-changing technologies to prepare future educators for a technology-driven, knowledge society (Gurgenidze, 2018; Lock & Redmond 2010; Uslu, 2020; Uslu, & Ersan, 2020). Hence, the environment, to which these educators or teachers in the future is dependent on the rigid training and impactful preparation they will achieve in the present.

For a long time, teachers including some expert educators are deciding how they can design successful and productive exercises. In the Philippine setting, it is compulsory for instructors to prepare lesson plans, convey them and evaluate students' learning (Rodriguez & Abocejo, 2018) which is crucial in deciding the requirements, qualities and shortcomings of student teachers toward lesson planning. Assessing the different challenges of students facilitate as to how teachers can address their students' concern in formulating strategies and solutions when caught in any lesson planning circumstances (Franklin & Stephens 2008).

Numerous researchers additionally proved that lesson plans are vital in giving a successful learning condition (Rusznyak & Walton, 2011). Also, Vdovina and Gaibisso (2013) demonstrated how a lesson design made instructors having a system for conveying to the learners a certain "learning goals". To include objectives, content, and assessment, just as actual lesson plan may be executed and evaluated (Jacobs, Martin & Otieno, 2008).

Lesson planning connects requirements of the educational program and course books with what are introduced in the classroom (Lee, Chen, & Khum, 2009). The teacher ought to likewise give clear, understandable, and exact guidelines, give fitting and clear solutions to students' request, utilize the classroom proficiently, be vigorous and dynamic while teaching, do support exercises in accordance with his or her showing esteems, give time, powerful and precise constructive criticism, enhance the learning encounters, make information concrete through distinctive and precise precedents, make of resources and tolls, and give the learners chances to comprehend learning.

The significant job teachers have in instructive frameworks expects teachers to furnish specified learning as well as skills. Instructor competencies are noted to be complex. Currently, instructor characteristics can be grouped into two: general instructor practices and educating abilities. Some broad instructor characteristics are the capacity to think about individual differences, set a case for the learners worth as wells as regard the learners, provide learners an important spot during the procedure, control the learners, strategize the exercise adequately, also actualize through adaptability, utilize the class period proficiently, be updated about the content, certain, and eager to adapt and progress (Borich, 2014; Demirel, 2011; Özçelik, 2010; Sönmez, 2008).

Choy et al. (2013) expressed that planning the lesson mirrors the instructors' understandings of topic, just as the manner in which resources to be utilized, as affected by the level to which the instructor is educated in terms of the learners' prior learning as well as the subjects to cover. In lesson planning, it can be perceived on the means pre-service teachers can change knowledge to actual comprehension. Moreover, preparation empowers pre-service teachers to thoroughly consider the specified topic, means to deliver, as well as assessing the learners

(Ruys, Keer, & Aelterman, 2012). In any case, pre-service teachers need involvement; especially during the planning and sorting out different exercises (Nilsson, 2009).

Further, some pre-service teachers confirmed having gone a long way in acquiring experiences and learning their lessons preparation for classroom teaching (Keengwe, 2012; Rodriguez & Abocejo, 2018). If a teacher begins with a well-defined targets of intended outcomes, authentic assessments can be rightfully achieve, reflective of what they teach and what learning they could expect from their students (Stiggins, 2008). Successful outcomes will then follow when teachers are able to make a clear learning objective towards smooth delivery of the entire lesson (Department of Education and Training, 2017). However, some research findings divulged that pre-service teachers could hardly make clear learning objectives, where their lessons could not produce the desired results once they mismatch assessment with the learning objectives (Rodriguez & Abocejo, 2018).

Methodology

Research Design

The study identified the gaps between theory and practice as that might have huge and vital impacts on their professional growth, possible benefits, and challenges to develop and guarantee more efficient and comprehensive teaching-learning practices for all. The study utilized phenomenological research design, specifically descriptive design using narrative analysis. The term narrative analysis includes a procurement of data which mainly depend on collected or expressed words or visual interpretation of respondent. Narrative or stories happen when at least one speaker participates in sharing and describing an encounter or occasion. Hence, this was utilized in identifying the gaps between theory and practice.

Participants

The respondents for the said study were the Secondary Pre-service Science Student Intern. A purposive sampling was utilized in choosing the respondents in selected three (3) State Universities. A total of 45 pre-service science teachers were chosen from State Universities.

Research Environment

The study was conducted at the selected Teacher Education Institutions in the Philippines. The selected Universities have their own Laboratory Schools which served as the training ground of the education students during their teaching internship.

Research Instrument

To identify the gaps between theory and practice, the researcher used a questionnaire with open-ended questions where pre-service teachers expressed their leanings, before and after teaching internship. The said questionnaire

was also validated by three professors from the different universities in the Philippines.

Data Analysis

In determining the gaps between theory and practice, the process of Colaizzi was used to provide assistance in extracting, organizing, and analyzing such narrative dataset. The following steps represent Colaizzi process for phenomenological data analysis (Sanders, 2003). 1. Each transcript should be read and re-read in order to obtain a general sense about the whole content. 2. For each transcript, significant statements that pertain to the phenomenon under study should be extracted. These statements must be recorded on a separate sheet noting their pages and lines numbers. 3. Meanings should be formulated from these significant statements. 4. The formulated meanings should be sorted into categories, clusters of themes, and themes. 5. The findings of the study should be integrated into an exhaustive description of the phenomenon under study. 6. The fundamental structure of the phenomenon should be described. 7. Finally, validation of the findings should be sought from the research participants to compare the researcher's descriptive results with their experiences.

Results and Discussion

Six gaps emerged from the responses of the pre-service science teachers concerning the gaps between theory and practice.

Gap 1: Lesson Planning

Based on the responses of the pre-service teachers, one of the gaps between theory and practice is lesson planning.

Overall Planning

Pre-service teachers emphasized the gaps regarding the overall planning of the lesson. This includes the format to be used (*School B, Participant 10; School C, Participant 11*), making of the objectives (*School A, Participant 2 & 7; School C, Participant 3; School B, Participant 7*), the strategies to be utilized (*School C, Participant 8 & 9*), as well as the instructional materials (*School B, Participant 2; School C, Participant 3 & 8; School A, Participant 7 & 4*), others consider it also as guide in teaching (*School A, Participant 1; School B, Participant 12*) as shown in the responses below:

“I’ve learn that as a teacher, you should have the strong commitment and dedication in everything that you do especially in making a lesson plan. The objectives must be stated correctly, it must be specific, concise, attainable, and time bounded.”(School A, Participant 2)

“Before I really thought that lesson planning is easy but after my internship I’ve realized that your lesson plan needs a lot of thinking, look for resources and stuff cause after all that will serve as your guide throughout the whole teaching experience.” (School B, Participant 2)

“Make more concise and clear objectives, plan everything and if possible, do mock teaching and test your IMs. Always bear in mind that the lesson plan holds the meat and flow of the lesson and the class.”
(School C, Participant 3)

“Before making a lesson plan, I had learned that all parts of the lesson plan must be delivered to the learners. There are also some objectives and competencies that needs to be followed accordingly. After teaching internship, I had learned that not all parts of the lesson plan is delivered because of time constraints.” (School C, Participant 5)

“You should read and plan ahead of time to avoid any problem so that it will be more organized. Also considering the objectives and availability of the materials” (School A, Participant 7)

“Before I’ve learned in lesson planning that you should have a complete mindset on how or will you do your lesson properly. But after internship in teaching you should write in advance and understandable manner your lesson so that at the end of the day you will able to achieve the objectives and tasks given.”
(School B, Participant 7)

“I have learned that when you have to teach, you have to ready all your IMs and your lesson plans and your mind to deliver the topic. Also, I learned that I have to finish my work before time or 2 days before time so that I am confident.” (School A, Participant 4)

“it is important to have a plan before teaching. The flow must be considered. The content, strategies, and the materials must be prepared if possible a day before demonstration.” (School C, Participant 8)

“HOTS questions should be ask to students all the time, every after activity, discussion or etc. There should be assessment or question to ask to the students. Before introducing the discussion, the teacher should conduct a review after the activity. The students should be clueless about the discussion. All questions from the start of the class should be answered in the discussion.” (School C, Participant 9)

“Before internship, I learned about how to write a detailed lesson plan. After internship, I learned how to make a 7E lesson plan which is more suitable for the young generations.” (School B, Participant 10)

“I was able to know other lesson plan formats which are seemingly different from what we used to follow in ILS” (School C, Participant 11)

“Lesson planning is very significant, for it provides a direction to teachers or guidelines and helps us to be prepared at all time.” (School A, Participant 1)

“I believed that lesson plan is a tool used in order to guide the teachers in their discussion. I learned that

lesson planning is an important tool for me in order to guide me on my discussion, and it helps me on my proper discussion.” (School B, Participant 12)

Diversity of Learners

Another emphasis made by the pre-service teachers is the diversity learners which need to be considered in making the lesson plan.

“Need to integrate various activities that would suit the learners” (School C, Participant 2)

“Lesson planning is more on theories and will remain a theory unless it is carried out during class proceedings. There is no perfect lesson plan for all sections in a single grade which means the teacher can just vary the approach and strategy in carrying out the learning objectives. Whereas, 1st section is good in making assumptions and theories close to the correct answer while students in lower level or in different curriculum need adjustments and new approach to cope with the lesson” (School A, Participant 3)

“I’ve learned that lesson planning must not be that idealistic. It should be SMART. It must be attainable and it needs to consider the students' capabilities.” (School C, Participant 4)

“Before, I only based on the theories that have been taught from our teacher in which acting that we have this and those student behavior. But along my journey as ST, I learned that lesson planning will vary depends upon the classroom situations and controlling the standard is very important.” (School A, Participant 5)

“I have learned that in lesson planning, the lesson should be written in a clear and understandable manner; it should be carried out in an actual school situation; includes the learning resources needed for the lesson; the learning outcomes should be clear, concise, and easily understood; variety of activities and methods/techniques are used, student's needs, interests and abilities are achieved; and the content is sufficient and appropriate to the level of the students.” (School C, Participant 7)

“In lesson planning, I have learned before that having or applying varied strategies is important in order to cater the interest of the diverse learners after teaching internship, I realized that in lesson planning we really need to identify what kind of learners i will be teaching so that an appropriate activity will be applied” (School A, Participant 10)

“Prior to my teaching internship, my lesson planning was too ideal to be carried out in the actual teaching classroom situation. However, after exposure to the actual teaching field, I have come to learn that, more often than not, students need longer time in doing my activities. I have also learned to simplify the activities so that students can understand them easier.” (School C, Participant 13)

Results revealed that primary pre-service teachers are aware of the importance of lesson planning; though, some difficulties were found during the planning. It may indicate that even if pre-service teachers have gained theoretical knowledge about lesson planning, it does not necessarily mean that such knowledge is translated into practice. The transition of the theories and principles into application, planning and implementation requires actual experience by the pre-service teachers.

Pre-service teachers claimed that access to instructional materials, students' interests and abilities, and teacher experience proved crucial to lesson planning skills development (Ramirez, 2019). As claimed, literature cited that lesson planning is a challenging and demanding process that comprises contextual understanding and pedagogical skills, to include the capacity in using critical thinking skills (Setyono, 2016). Consequently, when a theory is to be transformed to best practice over the long term, feed backing, sharing, and observing by experts are essential (Wallace et al., 2008). Therefore, mentor teachers and teacher educators may collaborate in helping pre-service teachers prepare competent lesson plans by letting them optimize teaching experiences towards transformative learning outcomes.

Gap 2: Pedagogical Skills

From the answers of the pre-service teachers, another gap between theory and practice is the pedagogical skills.

Varied Strategies

Pre-service teachers highlighted the gaps regarding the different strategies employed during actual practice teaching; where what they learned in theory phase was entirely different in the actual practice teaching. These include the learner-centered strategy (*School A, Participant 2*), the use of ICT (*School C, Participant 7 & 8*), and other varied strategies (*School A, Student 3, 4, 5, & 11; School B, Participant 4, 10, & 11; School C, Participant 2, 3, & 13*). Below are the responses:

"I've learn that strategies to be employ must be student-centered. The students should be an active participant during the teaching and learning process. The knowledge must come from the students and you as a teacher will just act as a facilitator."(School A, Participant 2)

"The pedagogical skills I've used during my internship vary accordingly to give opportunities for every learner who is/are in different modes of teaching. The teaching skills must involve good communication skills at all times, particularly in English language. Though some learners will insist MTB instruction, incorporate it with the second language (L2)" (School A, Participant 3)

"Motivations are essential to capture the younger learners. It is a need to learn different teaching strategies for the actualization of the lesson plan because there are a lot of different learners." (School C, Participant 2)

"Before I have no strategies in teaching like I don't know what to do after I realize that I did some

strategies in order my class not to get bored and learned more.” (School A, Participant 4)

“There are a lot of ways in teaching the students. All we need to have is patience in teaching.” (School B, Participant 4)

“It is better to always update yourself with the necessary pedagogical skills that would suffice the needs of the class and the school.” (School C, Participant 3)

“I have learned how to relate things, contextually in which what your topic must relate to their life situations and it is very important as a teacher” (School A, Participant 5)

“I have learned that in pedagogical skills, one should provide clear information about objectives, bibliography, tutorials, contents and assessment tools/methods in the subject's curriculum. We can integrate or use ICT to efficiently deliver the lesson. We should be objective and respectful to our students and facilitate them through student-teacher interaction.” (School C, Participant 7)

“The delivery of the lesson must be considered. ICT is helpful in the delivery of the lesson. Teaching must somehow be modern or student centered and maintains an objective and respectful position with students.” (School C, Participant 8)

“Before internship, I only learned about the concepts in pedagogical skills. After internship, I encountered real-life worked that enhances my pedagogical skills. It makes me a better person and a better teacher with a better mind and heart that sympathizes the students. (School B, Participant 10)

“Before internship, lots of strategies were introduced to us. But in the actual teaching internship, I usually use same strategies due to lack of time and materials in the lab. Instead of having demonstration/experiment, I used videos to supplement the topic.” (School A, Participant 11)

“I have learned how to establish a learning environment which is conducive in learning also I have acquired the knowledge of making my classroom more effective in creating a worry free environment.” (School B, Participant 11)

“I learned that cultivating a good teacher-student relationship is vital for optimum learning experience. In addition, it is important to set classroom rules at the beginning of the school year and to constantly reinforce these because students tend to forget the rules.” (School C, Participant 13)

Diversity of Learners

Pre-service teachers also made mention on the adjustment of pedagogy due to the diversity of learners.

“Before internship we were taught what is ideal but after internship we have learned that everything

depends on the students.” (School B, Participant 3)

“Before internship, I always inclined my knowledge about pedagogical skills with theories I learned during my study group journey. When I am exposed to real teaching, somehow these theories are applicable but you need always to think and consider the abilities of the students. You need to adjust your teaching skills from one student to another student.” (School C, Participant 4)

“Before, teaching strategy must be student centered but after teaching I had learn that teaching strategy must be balanced between the learners and the teacher.” (School C, Participant 5)

“Pedagogical Skills is somewhat useful since it helps me to remember the different practices inside school premises and understand the art of teaching that is very important in dealing diverse students.” (School A, Participant 7)

“Pedagogical skill is a must in teaching. It must be cultural sensitive and also varied.” (School A, Participant 9)

“Be more prompt to the details to the topic. I make sure that my student really learns from the discussion. Assessment in every after activity is observed. I should maintain the interest of the students from the start and to the end of the discussion, I use variety of learning style that fit or appropriate to my student.” (School C, Participant 9)

“Before my internship we had our demo and my classmates serve as my students, and it all went well but after the internship and I am on the actual students were there are different attitudes beliefs and characteristics. It is also hard to adjust, since they are the ones who will serve as an example to my future students and believe that I am ready.” (School B, Participant 12)

Results show that pre-service teachers were challenged to use a variety of pedagogical skills in order to teach. While their central undertaking is to simplify learning, pre-service teachers must organize information as well as manage several challenges concerning the learners. Also, pre-service teachers considered the learners diversity; such distinction of teaching approaches as to students’ diverse necessities, specific modifications on different learning strategies, to include their manifold dimension. It may be deduced that pre-service teachers ideally distinguish and were capable of using the theoretical foundations on pedagogy and of course, familiar specific instructional techniques on a real classroom scenario. They were able to translate these sets of competencies into actual teaching activities and that classroom experience and reflection on practices leads to teaching effectiveness. In light of the foregoing, learners have distinctive learning methods, various attitudes about instructing and learning, and various dimensions of scholarly improvement (Felder & Brent, 2015). It is extremely hard for any instructor to adjust his or her encouraging styles to the students' learning methods, however on the off chance that the person succeeds, the scholastic execution will rise, bit by bit getting to be steady after sometime (Lurea et al., 2011). Thus, understanding on how best to support the pre-service teachers’

pedagogical skills development in teacher education may perhaps be necessary to produce quality teachers and improving student outcomes.

Gap 3: Communication Skills

Communication skill is one of the gaps that emerged from the responses of the pre-service science teachers.

Diversity of Learners

From the responses, it was noted that pre-service teachers attuned their communication skills from the diversity of the learners:

“I have learned that in real-world setting in teaching, mostly of the students do not easily understand English language as a medium of instruction. It’s okay to use or communicate the students using English especially those who are in first section. We can still use that language but not all the time.” (School A, Participant 10)

“After our teaching internship, I realized that using English language all the time is not so efficient especially when you are dealing with students in remote areas who have difficulties in English. In that manner, you have to fit in and translate ideas in the way they could understand.” (School A, Participant 11)

“It is important to know your student's capability in terms of understanding English language so that you as a teacher can manipulate or shall we say we could find ways on how to communicate to them without barriers.” (School A, Participant 1)

“Communication skills must be properly used depending on the sets of students. There are students who can understand English while some cannot.” (School C, Participant 1)

“I’m quite confident with my communicating skills not until I’ve done my internship. Cause you have to make adjustments so that your students will truly understand you.” (School B, Participant 2)

“I’ve learned in communication skills before that as long as you teach your lesson properly or orderly to the students. But then after teaching internship I’ve realized that you should be able to know your standards by not just talking or speaking in English but, you should adjust your self by talking their vernacular language to understand.” (School B, Participant 7)

Speech Fluency

There were also some pre-service teachers who were very particular with their communication skills, especially during their teaching internship:

“I’ve learned that as a teacher you must be careful in everything you say. For instance, the voice must be modulated, clear and loud. As well as avoiding grammatical errors when speaking. (School A, Participant 2)

“We must be confident enough to speak in front of your students. Avoid stuttering and mannerisms. And always interact and communicate with your students.” (School A, Participant 7)

“I have learned in communication skills that we should be articulate, fluent, accurate and comprehensible in communicating to our students. We should modulate our voice and maintain it.” (School C, Participant 7)

“Modulated and clear voice. Correct pronunciation and spelling. Simplify to the very least the words which will be used in the discussion. Unlock unfamiliar terms. Ask the students regarding on their familiarity of the terms and not assuming that everyone understood them.” (School B, Participant 11)

Accrual Learning

On the brighter, there were also pre-service teachers who gained confidence (*School A, Participant 5 & 13; School B, Participant 1 & 10; School C, Participant 5*), and make good relationship after teaching internship (*School C, Participant 12 & 13*):

“Before the way I speak in front there is still a little shy part in me, but after my internship I was able to gain confidence each day and now I could see myself that I was able to develop it more.” (School B, Participant 1)

“I have learned that communication skill is very important tool to teach in any learning situations. Before my ST, I am very shy speaking English, but along the way, those fear had fade away and I was able to handle public communications.” (School A, Participant 5)

“Before teaching internship, my communication skill is really not that good especially in front of many people that sometimes it could affect my confidence level but after teaching internship, I can say that I improved a lot but need to work a little in connecting to the students.” (School C, Participant 5)

“Before internship, my legs would crumble when talking in front of a crowd. After internship, I manage to have more confident, roam around the classroom and asks students well.” (School B, Participant 10)

“Before, my communication skills are quite hard for me. At first, I got shy to communicate with other people but after my teaching internship my communication skills goes so well. It enhances my capabilities on communicating especially to my students.” (School A, Participant 13)

“I have learned that communicating orally/verbally to your students makes teaching more meaningful

because there is a connection between the students and teacher.” (School C, Participant 12)

“A good command in the English language and verbal communication helps students perceive the teacher as firm. Moreover, it is important to be able to deliver/communicate ideas clearly in order to have harmonious relationship inside the classroom.” (School C, Participant 12)

Based from the responses, aside from gaining confidence, pre-service teachers were cautious to the appropriate words that were used, the association between means of communication, and the suitability of their presentation and to the level of learners which they are teaching. Likewise, pre-service teachers transform the usage of everyday language that may bring students to communicate in and out of the classroom. It may imply that pre-service teachers did not only have the satisfactory communication skills needed, but also have the ability to hold discussions that allow students to learn.

Pre-service teachers learn and applied adaptive strategies to overcome the challenging situations (Ramirez, 2018). The effectivity of teacher communication has been seen to be connected with teacher integrity and supposed that teacher competence as well as influence student performance (Rink, 2010). Effective communication has been correlated with minimum need for disciplinary interruption (Gillies, 2014). Thus, programs for developing communication competence to skill enhancement may be arranged to pre-service teachers.

Gap 4: Classroom Management

Another gap emerged out of the responses of pre-service science teachers is the classroom management.

Classroom Management Strategy

Almost all of the pre-service teachers responded that classroom management is the most difficult when it comes to teaching. Aside from setting of rules (*School A, Participant 3 & 9; School C, Participant 5 & 7*), there were also some strategies used by pre-service teachers in managing their classes (*School A, Participant 2, 4, & 5; School B, Participant 4, 5, & 6; School C, Participant 9*). Shown are the responses:

“Classroom management starts with rules and regulations a teacher has imposed inside the classroom. It must be agreed upon both by the learner the teacher so there will be no regrets when policies were transgressed and punishments must be done. A teacher should be a role model at all so his/her students will just follow what she/he does.” (School A, Participant 3)

“Before I will start the lesson, the first that a teacher must do is to check the classroom environment. It must be conducive to learning to avoid misbehavior of students. On the other hand, as a teacher, you must set rules and regulations to be implemented inside the classroom.” (School A, Participant 2)

“Classroom management is a lot easier if you keep in touch with the students.” (School B, Participant 4)

“For classroom management, before I don’t know how to manage like they were too noisy but after that I did some strategies to minimize those. (School A, Participant 4)

“I have learned in the classroom management by observing the behavior of my students. It is not easy to handle classroom management if you’re in a last section, but this taught me to consider the factors that they prefer to. In this ways, everything is manageable.” (School A, Participant 5)

“It’s about the attitude that matters, if you’re respectful enough, students will be able to respect you, and they will follow whatever you say” (School B, Participant 5)

“Before teaching internship I had learned that classroom management must be agreed between the teacher and the student especially classroom rules. You also need to think the appropriate techniques depending on what grade level, which I had learned after teaching internship and handling different grade level.” (School C, Participant 5)

“Before I thought classroom management is an easy task, but when I started doing practice teaching it was not really easy at all. Student attention often is small when they are not interested in the subject or even in the person, they tend to do something else. Teacher should show to the class that she/he should be respected by employing routines for better classroom management.” (School B, Participant 6)

“Classroom management is the most challenging part in teaching. You have to consider the learning environment and use various instructional strategies and programs to maintain the interest of the students in the lesson. You should establish rules, and procedures to maintain the orderliness of the class.” (School C, Participant 7)

“I should make sure that students are prepared before I start the discussion. I should impose classroom rules before conducting a class. I should call student randomly so that all the student will listen to the discussion. Call the attention or call the students who are making unnecessary noise and ask question to that student regarding the discussion. Misbehavior should be taken attention.” (School C, Participant 9)

“Classroom management is one of the sole problem in the classroom, what I just did us that as a teacher you must be true to the words you said to them, like the of rules and regulation without bending the rules. Another, the student must see the authority and respect in you so that they will follow rules. lastly, show professionalism.” (School A, Participant 9)

Diversity of Learners

An emphasis was also made with regards to the diversity of students. The responses of the pre-service teachers are shown below:

“Students are very diverse and without classroom management, it is very hard to impart your knowledge.

So I learned that you have to manage them by imparting varied strategies that could catch their attention and can focus on the lesson.” (School A, Participant 1)

“One class is different from the other class. Classroom management is proportional with pedagogical skills. If your teaching style is not appropriate in teaching, it is also expected that your students will not pay their attention, which means you need also to improve your classroom management.” (School C, Participant 4)

“I have learned that classroom management is not that easy since there are diversity of learners. As a teacher you must set some rules and be flexible enough in dealing such different situations.” (School A, Participant 7)

“I’ve learned in classroom management before that It is just an easy task. But after internship I’ve realized it is one of the most difficult to handle. Since you are able to handle different or diverse student in class.” (School B, Participant 7)

“Given a diverse set of students, not just in looks but also terms of personality/attitude, it had turned me to be more firm but understanding facilitator.” (School C, Participant 11)

The above comments showed that the pre-service science teachers tried in maintaining the proper order and proper classroom conduct by using various methods considering the differences of the learners. Additionally, from the reactions of the pre-service teachers, it may be inferred that classroom management approaches vary in the ways they perceive students behavior and in the style they approach teaching and adjusting student behavior.

As reported, it is recognized that for effective learning environments to happen, classroom management may be interweaved with effective teaching that is appealing and significant (Gore et al., 2007). Thus, some form of training in classroom management for pre-service teachers, especially research-based classroom management practices may be established.

Gap 5: Personal Attribute

One more gap emerged out of the responses from the pre-service teachers was personal attribute.

Established Teaching Attitude

All of the pre-service science teachers were able to learn and improve not only their teaching skills but also their attitude. Below are the responses:

“I also consider their individual capability so I always treat them fair and ofcourse as they respect me I also respect them as well.” (School A, Participant 1)

“As a teacher, you must learn to love your students. You must give an equal opportunity for all to be an active participant in the class. You must have high patience, dedication and passion for teaching.” (School A, Participant 2)

“I’ve learned that teaching is beyond imparting knowledge, but it is a mission to care, love, understand, and value your student as well.” (School A, Participant 8)

“Attitude is very important in the teaching world” (School A, Student 11)

“It’s really not hard when it comes to dealing with kids. But when I had my internship I’ve learned to control my emotions.” (School B, Participant 2)

“Our students are always looking up to us as model or as role model and we need to act based on the way we wanted them to react.” (School B, Participant 3)

“I learned that students vary in any field, I learned that each of them are unique so as a future teacher you need to know how to have patience and dedication.” (School B, Participant 8)

“You need to act professionally at all times. Joking can be applied but you need learn when to do it and how to do it. Teachers must be friendly but business-minded.” (School C, Participant 4)

“Before teaching internship I’m really not considerate type of person but then I had learn after my teaching internship that not all my students can pass their papers on time so I need to be more considerate and patience.” (School C, Participant 5)

“I was able to extend my level of patience, expand time management and responsibilities.” (School C, Participant 6)

“A teacher’s job goes beyond normal working hours; thus, it is important to have passion or learn to love the teaching profession. In the job, there are days when you are very stressed out that is why one should learn to cheer up oneself and to have a positive outlook. Smiling to everyone you encounter in school will make the job easier.” (School C, Participant 14)

Diversity of Learners

Pre-service teachers also embraced the diversity and the individuality of their learners, as shown in the responses below:

“I got the urge to learn and understand my students’ individuality. I tend to think more of each of their capabilities. It’s always them.”(School C, Participant 2)

“I also consider their individual capability so I always treat them fair and of course as they respect me I also respect them as well.” (School A, Participant 1)

“I’ve learned that you should be fair to your students since they have different attributes. Always understand them and always ask them what’s the matter. You don’t have to scold them just understand the way they act and speak. And if you have seen any misconception, you should advice and comfort them.” (School A, Participant 7)

“Always show concerns and appreciation to individual differences. Encourage every student to actively participate. Student must feel the sense of belongingness.” (School C, Participant 8)

It can be observed that pre-service teachers are acquainted with the relationship and the specific social interactions approach to be established with the students. Overall, pre-service teachers on this study reported positive personal attribute. This apparent attitude of passionately positive individuals is promising for the profession. In addition, it may be deduced that pre-service teachers’ character traits, when used suitably, may become advocates for optimal student learning, and thus are vital to teaching-learning process and teacher-student communication.

As conveyed, personality has shown to be related to job satisfaction and, in certain circumstances, also correlates with job performance (Judge, Heller, & Mount, 2012). Thus, teacher education may need more emphasis on the personal developments involving in producing a professional pre-service teacher; to which, teacher training programs may include a well-grounded stability concerning the intellectual and emotional scopes of the pre-service teachers.

Gap 6: Professional Attribute

From the responses of the pre-service teachers, professional attribute came out as one of the gaps.

On Being Professional

Most of the pre-service teachers expressed how practice teaching taught them to act as professionals in front of the students. This can be supported from the answers below:

“A student intern must show/act professionally so that students will look at the teacher as a role model.” (School C, Participant 1)

“Don’t just stop being professional at school but also outside. Student might see you every day even on weekends/ non-class days and they see you as a model. Professionalism us within a teacher’s grasp; no one can dictate him/her. It is always an advice to maintain student gap with teacher.” (School A, Participant 3)

“You must be professional at all times no matter what is the circumstance.” (School B, Participant 4)

“Teacher should maintain professionalism in or out of school. Teacher could be friendly to her students outside but should be firm and authoritative inside the classroom. Teacher should be dedicated and motivated to work.” (School C, Participant 7)

“I have learned that professional attribute are really important especially on how professional you handle your students and your work.” (School B, Participant 9)

“I should act and respond in a professional way, everything should be proper my emotions my limits should be observe. I should be detail oriented. I should prioritize the things I need to prioritize. I should be more competent and flexible. Be more responsible with my work.” (School C, Participant 9)

“A teacher should always be professional and must maintain good ethical behavior at all times; whether it is interacting with students, parents, or co-teachers.” (School C, Participant 13)

“Before, I learned to be professional in all the way even I haven’t experience working with other people but in my teaching internship journey being professional taught me to develop respectfulness in every people or in every individual.” (School A, Participant 13)

Setting Boundary

On the other side, pre-service teachers also stressed the boundary between a pre-service teacher and the learners. The below responses states it:

“You should always put boundaries between you and your students.” (School C, Participant 4)

“We need to act at least a small gap between the students especially inside the classroom to maintain authority as a teacher.” (School B, Participant 3)

“As a teacher, you must maintain professional distance to the students, interact with students but not too much.” (School A, Participant 9)

“Before internship, I thought I could do anything with my students. After internship, I realized I should be friendly that should maintain a thin line of being their teacher. (School B, Participant 10)

“Settling boundaries is a must. During my earlier days in teaching students asked about my FB, and based on what I have observed students who know about your life aside from being a student teacher tend to go beyond.” (School B, Participant 14)

Based from the responses, pre-service teachers reported considerable confidence for creating and maintaining a

professional and ethical learning environment. Most of them were equipped with useful skills, particularly from authentic experiences with the teaching internship, which can be associated with the situation prevailing in a real teaching-learning situation. It has been claimed that, clear self-esteem and possession of a developing professional identity are essential circumstances that may help pre-service teachers commendably apply strong theoretical knowledge acquired from teacher education programs into actual situations in the future (Bennett, 2013). And that professionalism is the outcome of a process of action-reaction in refining professional competence, principles, character and knowledge (Evetts, 2013). Thus, the practice of teacher professionalism may be seen as an essential requirement to pre-service teachers as such awareness to the rapid changes of the educational system and their roles to be played to produce qualified teachers in the future. At pre-service teacher level, allowing pre-service teachers to self-report their learning may add to this evidence.

Indeed, the theories determine the strategies and techniques based on the belief on how pre-service teachers learn and consequently, affect the choice of teaching methods. However, there is certain learning during their practice teaching that most likely to take place because it happens either when there is practice of knowledge in really life situations or through authentic experience (Ramirez, 2018). According to Peercy (2012), the theory-practice gap in the teaching profession linked to varied understanding of teacher education among teachers. These student-teacher complaints are associated with short teaching practice and mismatch between what is taught at the university and what they ought to do during their practical training (Gießler, 2009). Therefore, practice with research-based theories in the teaching profession may culminate constructive effects.

Conclusion and Recommendations

Six gaps emerged between theory and practice of pre service science teachers: lesson planning, pedagogical skills, communication skills, classroom management, personal attribute, and professional attribute. These findings also produced noteworthy implications particularly to the teacher education institutions as well as to the forthcoming pre-service teachers. It may somehow afford a practical guide that may greatly inspire the teacher education institutions, precisely curriculum experts and the teacher education admiration, and integrate more approach in actual teaching and learning frameworks.

While the overall findings revealed favorable insights of the pre-service teachers toward the teacher education program, it cannot be repudiated that the findings have also provided significant inputs that can be used to enhance the implementation of the teacher education program, thus the following are the recommendations:

1. Existing strategies and policies of the teacher education program of the Teacher Education Institutions may be revisited and improved with the utilization of Teacher Education Development Action Plan for Pre-service Teachers in order to make the curriculum more responsive to the needs of the profession and for its effective and efficient implementation.
2. Pre-service teachers may also be involved in crafting, implementing, and assessment of the program for them to develop that sense of ownership and accountability in the implementation of the program. They may also be given comprehensive support during the tenure in order for them to be fully equipped and be competitive in their respective teaching careers.

3. For future researchers, another study may be conducted to investigate the factors that influence pre-service teachers' teaching competence. Also, a further investigation on the same aspect may be done with wider scope of respondents which include different field of specialization.

References

- Bennett, D. (2013). The use of learner-generated drawings in the development of music students' teacher identities. *International Journal of Music Education*, 31(1), 53-67.
- Dewey, J. (1963). *Experience and education*. New York: Macmillan. (Original work published 1938)
- Dewey, J. (1934). *Art as experience*. New York: Perigee Books.
- Evetts, J. (2009). The management of professionalism: A contemporary paradox. In S. Gewirtz, P. Mahony, I. Hextall & A. Cribb (Eds.), *Changing teacher professionalism: International trends, challenges and ways forward* (pp. 19- 30). London: Routledge
- Felder, R., and Brent, R. (2015). Understanding student differences. *Journal of Engineering Education*, 94(1).
- Gießler, R. (2009). Content-focused coaching in initial EFL teacher education. In: CELT (Ed) (2009). *Teacher Education Issues and Developments in EFL. Vienna English Working Papers*, 18(3).
- Gillies, R. M. (2014). The effects of communication training on teachers' and students' verbal behaviours during cooperative learning. *International Journal of Educational Research*, 41(3), 257-279.
- Gore, J. M., & Parkes, R. J. (2007). *On the mistreatment of management*. In A. Phelan and J. Sumsion (Eds.), *Critical reading in teacher education*, (pp. 1-16). New York, NY: Sense Publishing.
- Gurgenidze, M. (2018). Technology Assisted English Language Learning and its Possible Benefits in Georgia. *International Journal of Technology in Education and Science (IJTES)*, 2(1), 31-34.
- Judge, T. A., Heller, D., & Mount, M. K. (2012). Five-factor model of personality and job satisfaction: A meta-analysis. *Journal of Applied Psychology*, 87(3), 530-541.
- Lurea, C., Neacsu, L., Safta, C., & Suditu, M. (2011). The study of the relation between the teaching methods and the learning styles- The impact upon the students' academic conduct. *Procedia- Social and Behavioral Sciences*, 11.
- Peercy, M. M. (2012). Problematising the theory practice gap: How ESL teachers make sense of their pre-service education. *Journal of Theory and Practice in Education*, 8(1), 20-40.
- Ramirez, I. A. L. (2019). Teaching senior high school: Through the eyes of student intern. *International Journal of Multidisciplinary Approach and Studies*, 6(3), 42-52.
- Ramirez, I. A. L. (2018). Biological sciences pre-service teachers' challenges in teaching physics: A grounded theory. *International Journal of Multidisciplinary Approach and Studies*, 5(3), 136-150.
- Ramirez, I. A. L. (2018). Pre service teachers: experiences in teaching junior high school. *International Journal of Multidisciplinary Approach and Studies*, 5(2), 134-153.
- Rink, J. E. (2010). *Teaching physical education for learning* (6th ed.). Boston: McGraw-Hill.
- Sanders, C. (2003). Application of Coliazzi's method: Interpretation of an auditable decision trail by a novice researcher. *Contemporary Nurse Journal*, 14(3), 292-302.
- Setyono, B. (2016). Providing variations of learning modalities to scaffold pre-service EFL teachers in designing lesson plan. *Proceeding of The International Conference on Teacher Training and Education*,

336–343.

Uslu, B. (2020). From Preschool to Elementary 4th Grade: The Follow-up Study of the Effect of Life-focused Foreign Language Acquisition Program. *International Journal of Research in Education and Science (IJRES)*, 6(2), 273-283.

Uslu, B. & Ersan, C. (2020). The Effect of Foreign Language Education on Preschoolers' Native Language Development. *International Journal of Research in Education and Science (IJRES)*, 6(3), 381-395.

Wallace, F., Blase, K., Fixsen, D., & Naoom, S., (2008). Implementing the findings of research: Bridging the gap between knowledge and practice. Alexandria, VA: *Educational Research Service*.

Author Information

Iris April L. Ramirez

 <https://orcid.org/0000-0002-8616-4510>

Bukidnon State University

Philippines

Contact e-mail: irisaprilramirez@gmail.com

Picture Your Identity: Proficient English Teachers' Professional Identities in China

Hengzhi Hu, Feifei Huang, Ying He

Abstract

Teacher identity remains an area of interest in teacher development research because of its importance in influencing a teacher's professional practices, and the discussion of language teacher identity has come into public view with special attention attached to the field of teaching English to speakers of other languages (TESOL). Organized in China, this research presents Chinese English/TESOL teachers' understanding of their professional identities demonstrated through drawing, an innovative research method that can reveal the participants' inner and subconscious perceptions. Through content analysis, it is found that Chinese English teachers' role identities are closely linked with human capital that includes subject knowledge, technical knowledge and pedagogical expertise. Meanwhile, their role identities are connected with their emotional capital, and most participants hold positive emotions with their profession. However, some Chinese English teachers are unsatisfied with their business value and thus hold a negative view towards their role identities. This highlights the need to achieve homeostasis in Chinese teaching system.

Keywords: Teacher identity, Chinese English teachers, Human capital, Emotional capital

Introduction

Teaching is a complex issue, and how teachers position themselves in their teaching profession will affect how they teach and interact with students. Traditionally, in China, a teacher is normally expected to play the roles of knowledge gatekeeper, learning supporter and manager, strict disciplinarian and role model for students (He, 2016; OECD, 2016), and their identity is always described and linked with the so-called engineer theory, gardener theory, candle theory or lamp theory in metaphorical forms (Cortazzi, Jin, & Wang, 2008; Jin & Cortazzi, 2016; Qi, 2018). However, to a large degree, this merely reflects the expectation from the whole Chinese society for teachers rather than how teachers themselves perceive their identity and corresponding roles, and the broader social anticipation may contradict with teachers' personal senses of self or identity (Day, Kington, Stobart, & Sammons, 2006), the dynamic construction of which lies "at the core of the teaching profession" (Sachs, 2005, p. 15) as well as "in the individual, the social interaction and social institutions" instead of remaining fixed as a natural property (Fan & Ren, 2018, p. 70).

Research on foreign language teachers' identity issue has gained considerable attention in recent years, as it is expected to play a vital role in ensuring teacher' dedication to their profession and adherence to responsibility. That means, more specifically, that the reflection upon teacher identity "allows language educators a useful lens into the 'who' of teaching and how teachers construct and reconstruct their views of their roles as language teachers and themselves in relation to their peers and their context" (Farrell, 2011, p. 54) and explores "questions about the sociocultural contexts of learning and learners, pedagogy, language, ideologies, and the ways in which language and discourses work" (Miller, 2009, p. 172). As teachers and researchers in the field of teaching English to speakers of other languages (TESOL), the authors of this paper are highly interested in the research of TESOL teachers' role identity that could shape and mediate their views and understanding of 'how to act', 'how to be' and 'how to understand' their roles and responsibilities in their profession and that is expected to be distinguishing to that of teachers of other disciplines and subjects. A great deal of research has been conducted to analyze TESOL teachers' professional identities with constructive findings. However, in line with the view that steep changes of teacher identity may be frequently witnessed at the beginning of the career with smaller changes afterwards (Pillen, Den Brok, & Beijgaard, 2013), pre-service TESOL teachers enrolled in the initial teacher education (ITE) program (e.g., He & Kroiss, 2020; Kelly, 2018; Nguyen, 2017; Nguyen, 2019) and novice EAL teachers who have just completed the ITE and started their teaching journey (e.g., Kanno & Stuart, 2011; Othman & Senom, 2020; Raman & Yiğitoğlu, 2018; Sayer, 2012) always tend to be the main research participants to analyze the diversity, otherness and flexibility of teacher identity, providing few insights into how TESOL teachers at the middle stage of their career perceive their role identities.

This paper presents a study aimed at bridging this research gap by analyzing how Chinese English teachers who have accumulated years of teaching experience perceive their role identity at the mid-stage of their profession. Different from traditional research methods, such as interviews, questionnaires and case study, which have been always applied to investigate teacher identity development, painting as an innovative and arts-based research method was utilized in this study as a participatory act which could the participants "to more directly express their voices through artistic media with the goal of enhanced self-expression" (Walsh, Rutherford, & Crough, 2013, p. 121). By examining the participants' perceptions of their role identities, some valuable insights are expected to be produced and offered to Chinese educators, school leaders and other stakeholders so that they could better understand English teachers' identities and thus facilitate teacher professional development in the long run.

Literature Review of Teacher Identity

Identity remains a central focus in various disciplines, such as comparative politics (Deng, 1995; Ross, 2000), sociology (Côté, 1996; Hogg & Ridgeway, 2003), philosophy (Hirshman, 1992; Sollberger, 2013), international relations (Berenskoetter, 2010; Bucher & Jasper, 2016), anthropology (Finke & Sökefeld, 2018; Sökefeld, 1999), to name but a few. Basically, it is defined as the fact or characteristics of who a person is (Oxford Dictionaries, 2012; Scott, 2014). However, it is hard to judge if this definition is correct or not, or more strictly speaking, if it can appropriately summarize the meaning of identity, as primarily, "there is...no clear concept of identity" that is often "used widely and loosely in reference to one's sense of self, and one's feelings and ideas

about oneself” (Scott, 2014, p. 331), and the conceptualizations of it may vary considerably in different study areas. However, in line with Gleason’s (1983) observation, it could only be said safely that the complex meaning of identity used in diverse study fields is not well complied into dictionary definitions that merely signify the literal and old senses of the word with a longstanding debate surrounding the attributes of identity, which is described by Vignoles (2011) as the existing numerous but contradictory ways of describing identity, such as stable versus fluid and personal versus social. It seems that identity is a term that is too broad to be clearly identified, while against this, the view that identity is complex and dynamic and being constructed and re-constructed both in mind and in social contexts through the interaction and socialization with others is embodied in this paper. That is to say, identity is a “part of an individual’s self-concept which derives from his knowledge of his membership of a social group...together with the value and emotional significance attached to that membership” (Tajfel, 1978, p. 63) and “references mutually constructed and evolving images of self and other” (Jepperson, Wendt, & Katzenstein, 1996, p. 59).

As for teacher identity, various understandings have been developed. From a rather basic perspective, teacher identity is about the self-definition of a teacher with regard to their professional commitment and pedagogical relations (Day et al., 2006), and it can be further elaborated as an “ongoing process of integration of the ‘personal’ and ‘professional’ sides of becoming and being a teacher” at the core of their profession and the center of their beliefs, perceptions, values and attributes that would affect their practices (Beijaard, Meijer, & Verloop, 2004, p. 113). Likewise, a teacher’s role identity is always at the status of construction and reconstruction as a result of the synergy of complex context, prior experience and social status, exactly as the view put forward by Beauchamp and Thomas (2009) that teacher identity is being shaped and affected by context factors over time. Whatever the definition and interpretation of teacher identity may be, what is clearly illustrated is that teacher identity serves as a specific model of who a teacher is and how to act as a teacher based on the teaching field needs and individual internal recognition of teacher role and normally represents “multiple things (ranging) from teacher perceptions of what they do in the classroom, to enacted pedagogies in the classroom, to observed teacher dispositions” (Ballantyne & Grootenboer, 2012, p. 368).

Disciplinarily, the analysis of language teacher identity (LTI) has come into public view from a social and personal perspective, with a comprehensive explanation offered by Barkhuizen (2017, p.4) who maintains that:

Language teacher identities (LTIs) are cognitive, social, emotional, ideological, and historical-they are both inside the teacher and outside in the social, material and technological world...They are core and peripheral, personal and professional, they are dynamic, multiple, and hybrid, and they are foregrounded and backgrounded. And LTIs changes, short-term and over time-discursively in social interaction with teacher educators, learners, administrators, and the wider community, and in material interaction with spaces, places and objects in classrooms, institutions, and online.

This view is foundationally embedded in the nature of LTI that is actually dynamic, multiple and subject to various context factors, and to put it in a more straightaway manner, the foci of LTI are generally related to “social recognition, how teachers learn to perform as professionals, how they apply theory in their teaching practices, how they theorize their practice...(and) how they teach” (Salinas & Ayala, 2017, p. 36) within the general framework of identity and teacher identity.

In the category of LTI, English teacher identity has been an emerging topic for the past decades with special attention attached to TESOL teachers who may also be addressed as teachers of English as an additional language (EAL), English as a second language (ESL) or English as a foreign language (EFL). In the field of English language teaching (ELT), how teachers “see themselves and the various roles that are imposed, assumed, and/or negotiated while they teach in different settings” and how they “are seen as TESOL teachers by others and as such influences decisions made by the teacher themselves” in classroom could well summarize the focus of discussion about teacher identity that represents who they are and what they do in an evolving way at their profession (Farrell, 2017, p. 34). Scholars and educators have formulated different frameworks to analyze TESOL teachers’ identities. A comprehensive one is developed by Pennington and Hoekje (2014) who maintain that a TESOL teacher’s identity is subject to their practices at workplace (e.g. instruction, disciplinary field, profession, business, service) and the overall ELT context, whether that being global, local or sociocultural.

From a holistic view, this framework takes into account differing facets of EAL teachers’ identity, and all of these factors make up a teacher’s role identity. However, a problem with this framework may be that the dimensions of the teacher selves are mainly professional. According to Zacharias (2010), a teacher’s identity — whether they are a TESOL teacher or a teacher of other subjects — should be multidimensional and “includes the interplay between the personal and professional dimensions” (p. 180). These two dimensions may be well-balanced, while in most cases, they are the ‘site of struggles’. That is to say, a teacher’s identity can be influenced by their practices at work and their personal feelings or situations. It is possible for a teacher to have mixed and competing identities. This view provides the basic framework for the study presented in this paper, and how multidimensional teacher identities can be is what to be explored.

Methodology

Procedure

This qualitative research was conducted online under the circumstance of COVID-19. All the participants were notified in advance of the academic purpose of this research and that their drawings were not related to their job performance evaluation or any other profession assessment while being invited to participate in this research. They were not compulsorily required to identify their personal information (e.g. gender, school types, year levels, education background) on drawings but were encouraged to do so for further data analysis. They also signed the research agreement to consent to have their drawings included in this paper without private information disclosed. Data are collected from primary and secondary school teachers who are based in a major Chinese city participating in it. After being explained the task details, the participants were given sufficient time to make their drawings, the submission of which occurred at the completion of them.

Participants

Officially, there are five hierarchical grades to indicate the career stages for Chinese teachers, including novice teachers, intermediate teachers, advanced teachers, senior teachers and professor senior teachers, and strict and

complex requirements are needed for a teacher in order to gain a more advanced professional title (OECD, 2016). In this research, the selection of participants was based on a much simpler grading level developed by Chinese educator, Lian (2008, as cited in Yang, 2013), who divides the career of teaching into three stages after ITE, including novice teacher, proficient teacher and expert teacher, which basically complies with the categorization “following preservice preparation as induction and the early years, the middle years, and the later years leading toward retirement” (Christensen, Burke, Fessler, & Hagstrom 1983, p. 4) and Huberman’s (1993) career model that includes early career stage, mid-career stage and later-career stage. In line with this type of categorization, all the participants in this research were at their mid-career stage and considered proficient after three to five years of teaching experience. Drawings were submitted by 176 proficient English teachers, and all of them hold the People’s Republic of China Teacher’s Qualification Certificate or other certificates that qualify them to teach English in China.

Data Collection

Drawing upon the idea that images can well categorize and realize how teachers see themselves as teachers in their profession embedded in a psychological view that drawings could serve as a channel of expression of a person’s inner and subconscious values, desires, perceptions and thoughts that could be hardly released at a verbal level (Diem-Wille, 2001), the participants were required to draw a picture to represent their teacher identity without strict time limit. While drawing, they were also asked to write a few words to explain what they had drawn for the convenience of further analysis, which corresponds to the idea that when using drawing as a research method, both drawing and writing should be entailed to elucidate the embedded meanings (Mair & Kierans, 2007). The drawings were then submitted to the research organizers via email, fax or messenger applications.

Data Analysis and Reliability

Since only a small number of participants (n=16) identified their gender, age, education backgrounds, school types and other relevant information when submitting their drawings or on their drawings, all the drawings were regarded as a whole set of data during analysis without taking into account the aforementioned factors. All the submitted drawings included texts, because the participants were asked to write a few words to explain what they had drawn during the initial data collection process, whereas the examination of drawings outweighed the analysis of words that only played a supplementary role in helping researchers to understand the details of paintings, which was in line with the primary research purpose in analyzing how teachers themselves perceive their professional identity instead of examining their expectations of an ideal teacher or their views of what kind of teacher they want to become. The collected data was organized, coded and categorized by examining the details on the drawings. The results were then reviewed through content analysis that focuses on the precise interpretation and understanding of a specific type of content (Krippendorff, 2004) to minimize the influence of subjectivity on the analysis results.

Results

Summary of Results

Except for several pieces of drawings (n=8) that were not identifiable and thus were considered invalid, the other drawings (n= 168) were considered as valid data with various elements demonstrated, including teacher, students, colleagues, family, artifacts (e.g. book, table, whiteboard and laptop) and other designs (e.g. candle, heart shape, walker, tree and mountain). After examining the common elements presented on the drawings, the valid data was finally categorised into (1) teacher, students and artifacts; (2) teacher only; (3) teacher and artifacts; (4) metaphor; (5) teacher and students; (6) teacher, students and other stakeholders; (7) other. The detailed results are presented in Table 1.

Table 1. Research Results

Category	Explanation	Frequency	Percentage
teacher, student(s) and artifacts	The elements of drawings include teacher, student(s) and artifacts.	52	30.23%
teacher only	There is only a teacher in the picture.	32	18.6%
teacher and artifacts	The elements of drawings include teacher and artifacts (e.g. books, whiteboard, laptops)	32	18.6%
metaphor	There are other designs (e.g. candles, trees, lighthouse) in the picture to refer to teacher identity in metaphoric manner.	28	16.28%
teacher and student(s)	The elements of drawings include teacher and student(s).	16	9.3%
teacher, student(s) and other stakeholders	The elements of drawings include teacher, student(s) and other stakeholders (e.g. colleagues, parents).	4	2.33%
other	The elements of drawings do not strictly belong to any of the above categories.	4	2.33%
In total: 168			

Category 1: Teacher, Students and Artifacts

A majority of the submitted drawings (n=52) include teacher, students and various types of artifacts. For instance, Figure 1 that is in the form of four-frame comic presents a particular participant's role identity in different settings from before-class preparation to after-class activities. Specifically, before class, the teacher is planning her lessons, and it is worth nothing here that she does not only plan to present her classes using technologies but also attempt to combine other disciplinary areas into her teaching, such as music and arts. As shown in the second part of this picture, confident and well-prepared, she is teaching English alphabet with a book and a pointer in hands. She looks quite cheerful and dedicated to her profession, and this particularly can be shown from the rest part of the picture in which she overruns her class and even participates in after-class

tutoring during her break to cater for student needs, though students may complain about that. This drawing demonstrates that the participant's role identity is connected with professionalism and dedication and recognises that teaching is a complex issue that may involve the application of a teacher's pedagogical skills and knowledge reserves other than language expertise, and she regards herself as a knowledge imparter, a dedicated volunteer who spares no efforts to help students and most importantly and a teacher who is proficient in utilising different language teaching approaches.

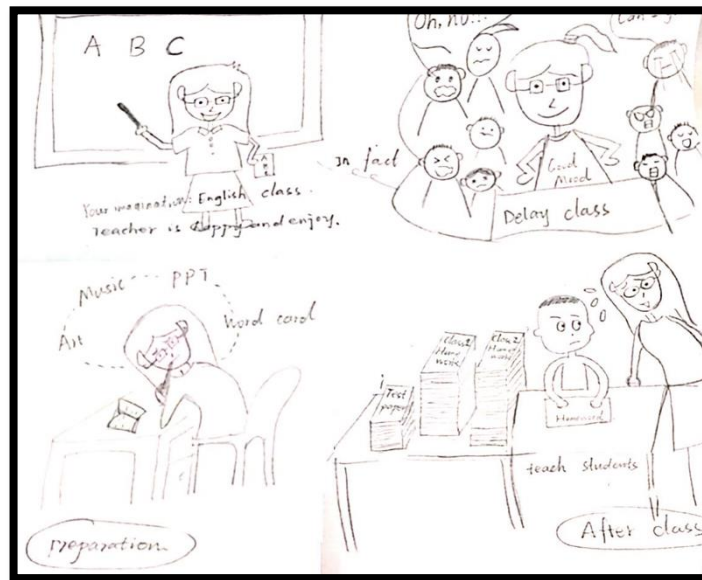


Figure 1. A Sample Picture in Category 1

Another sample drawing is shown in Figure 2, and this represents another typical scene in this category.

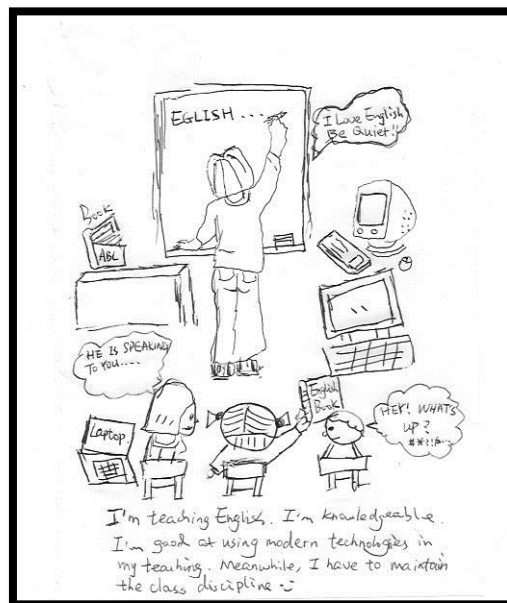


Figure 2. A Sample Picture in Category 1

The teacher is delivering an English class with the assistance of traditional teaching tools (e.g. whiteboard, chalk, books) as well as information communication technologies (ICTs) (e.g. laptops, computers). The students are chattering with each other, and the teacher is trying to continue their teaching as well as trying to maintain the class discipline. This picture also reflects the complexity of teaching in the manner that beside knowledge communication, an EAL teacher also needs to manage the class and use modern technologies to assist their teaching.

Category 2: Teacher only

The second category contains the drawings (n=32) that only pictured teachers themselves, the focus of which lies on the multiple roles a teacher plays and the diverse abilities and skills they have. The first example, as shown in Figure 3, depicts a versatile teacher. The participant regards themselves as a 'bodhisattva of thousands hands', and each hand represents different roles and skills needed in profession. It is the embodiment of jack of all trades characterized by versatility and multiple abilities. That is to say, the participant believes that he or she does not only take the responsibility of teaching English as an expert, but also, more importantly, play other roles, such as learners' friend, cameraman, to name but a few. Similarly, Figure 4 that portrays a male teacher who is delivering English classes, telling stories, organizing classroom activities, looking after students and even using dance and performance to supplement his teaching also highlights the multiple capabilities and versatility that a teacher needs.

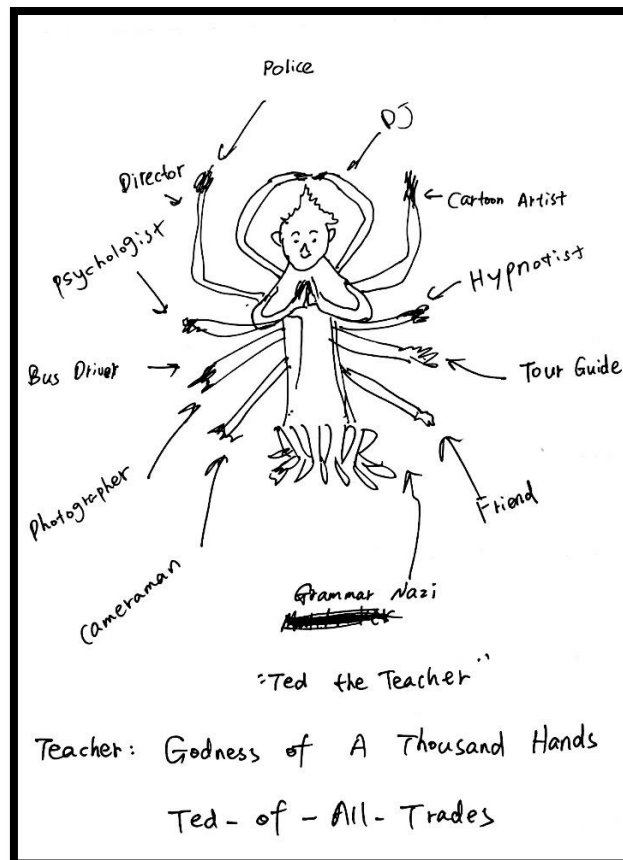


Figure 3. A Sample Picture in Category 2

These two sample pictures signify that teachers are teaching experts, play multiple roles and need a vast repertoire of knowledge and skills of diverse areas. What is generally reinforced here within this category is a teacher's self-development and personal abilities that are connected not only with teaching and academic expertise but also to the diverse skills corresponding to the different roles they play in their profession.



Figure 4. A Sample Picture in Category 2

Category 3: Teacher and Artifacts

Many participants (n=32) drew a teacher with artifacts to show their role identity. A typical drawing is shown in Figure 5, which presents an approachable female EAL teacher in formal suit standing beside the whiteboard with a cheerful smile. With a book in hand, she is teaching English alphabet and elaborating the letter A using an apple picture as an example.

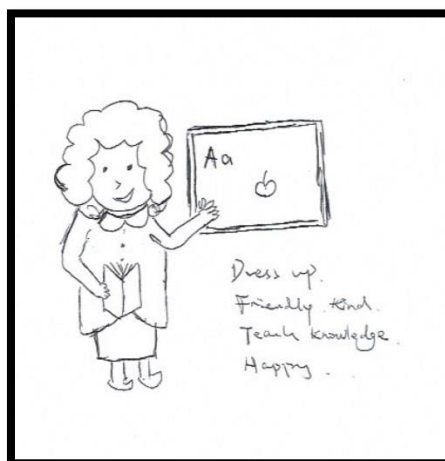


Figure 5. A Sample Picture in Category 3

Similarly, in Figure 6, the teacher who is in formal dress and explaining a specific syntax structure on board also

presents a professional and confident profile. Generally, this category reflects a positive teacher profile, and according to their similar dressing style, expression and practices, it can be assumed that they regard themselves as professional knowledge imparter and take a positive, friendly and confident attitude during teaching practices, which denotes that their self-role identity as EAL teachers is linked with professionalism, knowledgeable and positive dispositions.

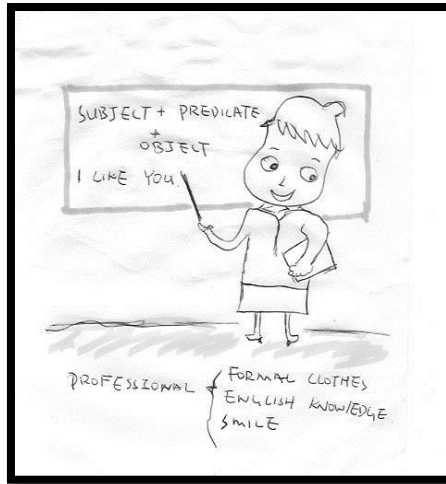


Figure 6. A Sample Picture in Category 3

Category 4: Metaphor

Some participants (n=28) used metaphoric methods to show their role identities, and the displayed items on the drawings are not necessarily the common elements contained in the other categories but can still indicate how the participants evaluate their profession. For example, in Figure 7, there is a nearly-spent lit candle against the dark background, and it lights up the surroundings with globules of wax dripping from it.



Figure 7. A Sample Picture in Category 4

This scene was summarized by the participant as the conduct of 'sacrificing myself to ignite others'. Obviously,

this is exaggerated expression, but what is demonstrated here with regard to the participant's teacher identity is that they regard themselves as a helper who is assisting students in overcoming upcoming challenges and devoted into voluntary labor without asking for returns at an ideal and moral level of their profession. Another example of this category is Figure 8, in which there is a small tree and a big tree that stand for students and teacher respectively. The big tree grows straight and tall and almost reaches up into the sky, and it is regarded as the role model for the smaller one. In other words, this participant equals a teacher's identity to a role model who is always positive and confident in themselves and continues to strive for bigger objectives.

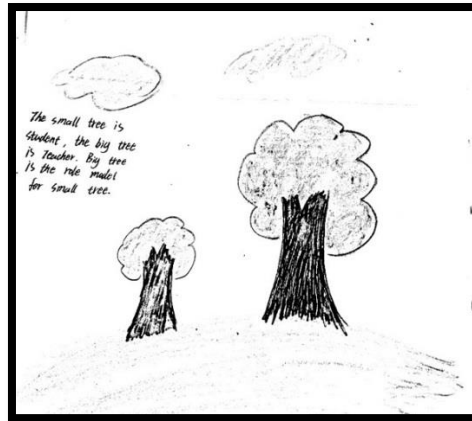


Figure 8. A Sample Picture in Category 4

Category 5: Teacher and Student(s)

Some drawings (n=16) only portrayed teacher and student(s) interacting with each other. In Figure 9, a teacher who holds a student's hand is pointing straight ahead and leading the way, and this mainly reflects that this participant believes that he or she plays the role as an instructor and helper in student development of various areas, whether that being academic, moral or related to different aspects of life. Also, a sense of trust can be detected from this picture, especially from the hand-holding behavior.

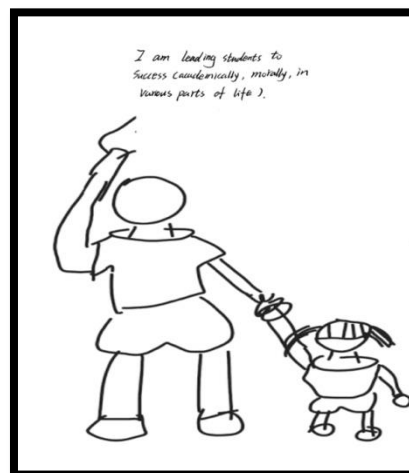


Figure 9. A Sample Picture in Category 5

Category 6: Teacher, Students and Other Stakeholders

A small number of drawings (n=4) depicted the characters of teacher, students, colleagues and parents. As shown in Figure 10, the neatly dressed teacher positioned in the middle appears confident and aimable, and he is connected with students, colleagues and family by double-sided arrows, which symbolizes that the teacher plays a significant role in and is confident of assisting, supporting, promoting and strengthening the communication among different stakeholders as a part of their profession instead of isolating them. The students, parents and colleagues presented in this example look rather joyful and content, which further emphasizes the importance of building inclusive relationships among school, students and family.

Although this category only takes the smallest portion and is not related to academic expertise that may firstly enter into one's mind when asked about the profession of an EAL teacher, it does signify an important element of teacher identity from a whole-school perspective, which is about a teacher's role as an expert negotiator and communicator committed to building engaging relationships amongst different stakeholders.



Figure 10. A Sample Picture in Category 5

Category 6: Other

A few participants' submitted drawings (n=4) were categorized into this group. Although each of these pictures included teachers, they were still labeled as a special set of data that is different from the aforementioned categories because of the interesting similarities these drawings show as to some teachers' negative emotions arising in their profession. As illustrated in Figure 11, disappointed and downcast, the teacher is complaining about the salary that she gets paid, and the 100-yuan banknote is highlighted, which further emphasizes that she is discontented with the considerable imbalance between the salary and the workload she has coped with. This reflects that the participant's professional identity is associated with low economic status, which can well

summarize the teacher identity the participants of this category attempted to express with special attention to unsatisfying social and business values.

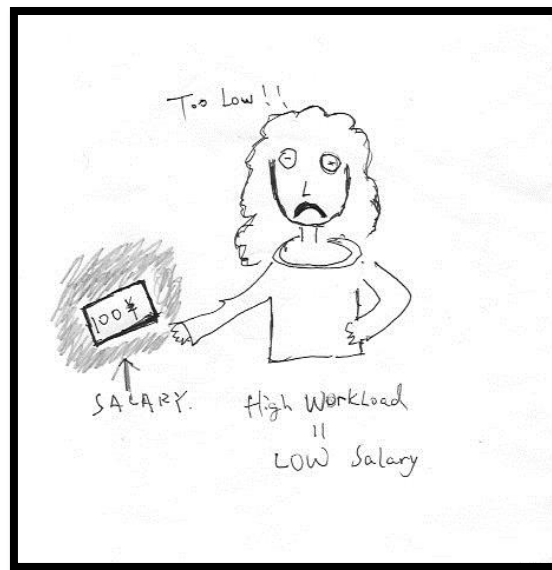


Figure 11. A Sample Picture in Category 6

Discussion: The Complexity of Teaching

Summary of Findings

Teaching is a complex issue, and the above data analysis demonstrates different sorts of teacher identities of in-service Chinese English teachers who are at the mid-stage of their profession. Generally speaking, human capital and emotional capital are two manifest features of the collected drawings, from the perspective of which the subjects' teacher identities will be discussed in what follows.

Human Capital

There is not absolutely correct answer with respect to what kinds of attributes an English teacher needs to have, whereas this research has presented a high level of diversity of teacher attributes and capital, whether that being human or emotional, positive or negative. Human capital is normally “considered as a collection of features, life trade, knowledge, creativity, innovation, and energy, which people invest it in their work” (Pasban & Nojedeh, 2016, p. 250). With respect to teaching, human capital can generally refer to subject specialism, technical knowledge and application of knowledge and skills into teaching. Both in China and in a global context, an English teacher's or a TESOL teacher's subject knowledge of English is considered to be foundational for effective teaching, underpinning their entire profession (Flynn, 2007; Li, 2010). Generally, the knowledge transmitter profile that many participants pictured can still reveal that they regarded subject knowledge as a key to their profession and knowledge communication as one of their professional goals, which can be seen from the classroom situation in most of the aforementioned allocated categories, such as Teacher, Students and Artifacts,

Teacher only, Teacher and Artifacts and Teacher and Students. Some participants expressed in drawings the significance of subject knowledge in a direct way, such as in Figure 1 and Figure 2 in which the teachers consider themselves as knowledgeable, Figure 3 in which the teacher plays a role of ‘grammar Nazi’ who is a strict grammar user, Figure 5 and Figure 6 in which the teacher believes that English knowledge is an integrated part of professionalism. Subject knowledge is an essential component of the professional standards for teachers in China (Yang, Kaiser, König, & Blömeke, 2018), and the overall education context in China where a student’s mastery of English knowledge and performance in English assessment tasks are the principal indicator of student language proficiency and teaching efficiency (Wei, 2016) may well explain why subject knowledge proficiency is regarded as a key standard for English teachers. In other words, the examination-oriented educational context that prioritizes knowledge is the driven force that shapes Chinese English teachers’ principal role identities as knowledge transmitter.

Basically, in educational contexts, technical knowledge or ICT skills stand for the capabilities of an individual to utilize ICT system and devices at workplace, and a teacher’s ICT skills are important teacher capital closely linked with their teacher identity, especially for a language teacher (Son, 2018). Demonstrated in a number of collected pictures, it is noticeable that apart from subject knowledge, many participants regard themselves as proficient ICT users as a part of their professional identity. This can be particularly seen from the largest category of drawings (Teacher, Students and Artifacts category), which depict the English teachers who are good at using ICT, such as electronic devices, software and applications, to assist lesson planning and language teaching. In recent years, the rapid development of ICT has changed the traditional modes of education as well as pedagogical approaches. This can be described as a revolution of language teaching under the broad situation of world of communication that is central to both language teachers and learners. In China, the development of ICT use in education started from the 1990s, and significant achievement has been made “with respect to infrastructure construction, production of resources, academic education”, teaching innovation, education management and so on (Wang, Liu, & Zhang, 2018, p. 195). For English or TESOL teachers, particularly, it is vital for them “to use ICT in the teaching and learning process in order to help students to achieve a high quality of English subjects” because of the authentic context that ICT can provide and in which language acquisition can usually effectively occur (Alkaromah, Fauziati, & Asib, 2020, p. 122). In this sense, a TESOL teacher should understand the relationship between English teaching and ICT use and skills, utilize their subject knowledge to screen and choose proper ICT resources and formats to help achieve language teaching and learning goals, know how to use ICT to design lessons that can develop students’ language proficiency and expand their understanding, know how to deliver and organize lessons with the assistance of ICT, and be confident of employing ICT and technical knowledge into profession. Through our research, it is inspiring to see that many participants have the attributes or abilities to plan for and organize ICT-supported English teaching, and ICT has become an integrated part of their daily practices at workplace. It should be mentioned that proficient ICT user, as some of the participants’ role identity, is not contradictory to the aforementioned role identity as English knowledge transmitter. Instead, most participants regard these two identities as supplementary to each other, which can be seen from the largest category of drawings that depict English teachers who use ICT in lesson planning and teaching. This reflects that in the world of communication, English teaching has been closely connected with and shaped by ICT utilization, and ICT has been an integrated part of

a number of Chinese English teachers' professional practices.

Teaching is a complex issue, and it requires a range of skills and techniques to ensure the quality of teaching and learning. In other words, teachers should know how to teach and use pedagogical content knowledge to maximize student learning outcome, and this is recognized in TESOL (Flynn, 2007) as well as in China at official and local level (Yang et al., 2018). Various professional teaching skills are presented by research participants in their drawings connected with their teacher identities, and it must be recognized that pedagogical knowledge, as an integrated part of human capital, plays an important role in shaping a teacher's professional identity. The second largest category of drawings, namely Teacher Only one, presents the participants' understanding of pedagogical knowledge in an explicit manner. For instance, according to Figure 3, the participant believes that he plays a range of roles in his profession as 'jack-of-all-trades'. Although there is not much information explicating how each role the participant plays functions in English teaching, it can be still noted that his teacher identity is not only about teaching English but also about how to teach as well as how to function at workplace. Figure 4 presents the participant's understanding of the application of pedagogical approaches in a more direct way. The profile of a teacher who teaches English through storytelling, singing and playing games reflects various pedagogical approaches commonly used in language teaching, such as music-based learning that can develop learners' multiple intelligences, dance and language-integrated learning that can benefit students cognitively, linguistically and culturally, and game-based learning that allows students to engage into learning in an interactive and dynamic way.

In China, schooling is usually criticized to be teacher-centered and dominant without truly engaging students who are normally regarded as the passive receipts of knowledge (Wang, 2006). Although educational reformation has been witnessed and called upon in recent years for the transition from the view of teacher as the center to students as the center, the fact is that teacher-centered situation is still quite commonplace in China, which can be also seen in this research. A number of participants assume that their major responsibility as English teachers is to teach this specific language as knowledge transmitter. Although their drawings present different elements, a main similarity is that they put themselves at the center of teaching. However, it must be mentioned that a few participants' drawings dispel the teacher-centered situation and present a scene that involves students, colleagues, families and other stakeholders into their profession, such as Figure 10 in the category of Teacher, Students and other Stakeholders. As mentioned above, teaching is a complicated issue. There are not only specific questions related to English teaching itself, such as the aforementioned subject knowledge and teaching strategies, but also some general questions with respect to education and schooling. The category of Teacher, Students and other Stakeholders illustrates that some English teachers believe that their profession involves the cooperation of students, colleagues, family members and other stakeholders in a synergizing way, which is in line with the concept of collaboration paradigm in which both parties are included into schooling in a joint endeavor so that student learning outcomes could be maximized. This research finding is rather inspiring, because this is contradictory to a separation paradigm that puts teachers at the center and views the engagement of other stakeholders invalid and useless (Amatea, 2013) and to the Chinese-style schooling criticized to be teacher-centered and dominant. According to Wang and Du (2014), a teacher's identity development is tightly linked with how they cope with interpersonal relationships at workplace. This

skill of working with students, colleagues, family members and other stakeholders reflects an English teacher's role identity as participant, facilitator, organizer and instructor of language learning process to achieve language proficiency (Wei, 2016), and this transition from a teacher-centered English language classroom to an inclusive and student-centered whole school environment that engages every potential stakeholder is what is being looked for but has not been achieved yet.

Emotional Capital

As defined by Cottingham (2016), emotional capital generally refers to “the emotion-specific...resources that individuals activate and embody in distinct fields” (p. 451). For teachers, this term can be used to describe their emotion norms and capacity that can meet “the practical and interactional demands” at schools (Cottingham, 2017, p. 273). There is no strict standard with respect to what kind of emotions a teacher in China should have, whereas a majority of the participant teachers in this research presented an emotionally positive profile, and some pictures were also labeled with explanative language, indicating a teacher's positive emotions in teaching, such as happiness, friendliness, confidence, dedication, etc. This can be noticed from all the categories of paintings except the last one. For example, in Figure 1 (Teacher, Students and Artifacts category), the teacher shows a high level of dedication to her profession through thorough lesson planning, conscientious class delivery and student scaffolding; in Figure 3 and Figure 4 (Teacher only category), the motivated teachers seem to be committed to their professional development; in Figure 5 and Figure 6 (Teacher and Artifacts category), the participants think that a teacher should be friendly, kind, happy and smiling; in Figure 7 (Metaphor category), the participant regards themselves as a candle that is the embodiment of a sense of commitment and responsibility. All these key words and elements from the picture samples demonstrate that the participant teachers enjoy their profession with different types of positive emotions. Undoubtedly, “a conducive environment coupled with positive emotions create a good platform for teaching and learning”, and a teacher's positive emotion in profession can enhance the teaching effects as well as improve the classroom environment and atmosphere (Makhwathana, Mudzielwana, Mulovhedzi, & Mudau, 2017, p. 28). In China's educational context, a teacher's positive emotions are being emphasised in official and daily discourses aimed at “achieving instructional goals, decreasing the negative impact of emotions on student learning, confirming the professional and ethical norms, maintaining teachers' and students' mental health, keeping positive emotional images, and nurturing good teacher-student relationships” (Gong, Chai, Duan, Zhong, & Jiao, 2013, p. 870). As language teaching is a highly social-interactive activity, a teacher's positive emotions are particularly important to ensure that academic achievements can be made, communication and interaction in class are quality, learner motivation can be increased, and classroom management is effective (Cubukcu, 2013). Although the participants expressed their positive emotions in profession in different ways, whether that being explicit or implicit, it can be concluded that they have a sound affection with their profession and regard teaching English as an enjoyable and productive process.

As mentioned above, teacher identity is fluid and keeps being shaped subject to various factors. Similarly, emotional capital is dynamic and can change “over the course of occupational experiences...in social practice” (Cottingham, 2016, p. 446). It must be acknowledged that potential career challenges may weaken teachers'

positive emotions in the reality of teaching and that negative emotions arising from workplace practices are evitable (Pillen et al., 2013). Different from previous research conducted with pre-service teachers or novice teachers who solely presented positive emotions in teaching profession (e.g. Beltman, Glass, Dinham, Chalk, & Nguyen, 2015), the study presented in this paper shows that in-service teachers may have negative emotions arising from their profession. Specifically, although most participants have expressed a positive attitude towards their professional identities, it cannot be neglected that some participants are unsatisfied with their profession, especially with their socioeconomic status or business value. This can be seen in the last category of collected drawings with an example shown in Figure 11.

This research finding is rather different from previous ones that Chinese English teachers' negative view of their professional identities are linked with lack of confidence in language proficiency and pedagogical skills (Xiong & Xiong, 2017), tensions between teachers and institutions (Tao & Bao, 2018), to name but a few. As can be seen from the aforementioned last category of pictures, some English teachers assume that they have to undertake heavy workload but are usually less paid. Although only a small number of participants are dissatisfied with their socioeconomic status in this research, it is safe to say that it actually corresponds to the situation that English teachers in China are given high demands (Wei, 2016) and reflects the broad picture that there exists a gap between Chinese teachers' workload and salary, which is the case for teachers of all disciplines, not only in English. According to the research done by the National Institute of Education Sciences (2014), in China, primary and secondary school teachers' average workload is much heavier than that of other OECD countries, but their average salary is significantly below the global level. Elmer and Crothall (2016) explore the issue of Chinese teachers' socioeconomic status from the perspective of national and local policies and find out that even though there is an explicit state system that clarifies a teacher's wage should include basic salary, performance pay, benefits, bonuses and subsidies to increase their wage, vague standards and arbitrary enforcement of these standards by schools and local governments mean that many teachers have not got any wage increases equivalent to their workload. In this case, it is understandable and acceptable that some research participants do not feel content with their socioeconomic status as English teachers. As mentioned earlier, a teacher's emotion displayed in profession may affect their working efficiency and teaching and learning outcome. Although how the participants' negative emotions could influence their work is not explored in this research, other researchers' works have spotlighted why it is necessary to address teachers' negative feelings and pay attention to their emotional labor, such as Stanley's (1999) research that indicates the negative effects of TESOL teachers' negative emotions on instructional practices, Tejeda, de González and de Jesús López Martínez's investigation (2016) that shows removing EFL teachers' negative emotions in profession could largely improve student academic success, Pishghadam, Zabetipour and Aminzadeh's (2016) study that reveals EFL teachers' negative feelings may influence teacher-student relationship and student learning motivation, Toraby and Modarresi's (2018) examination that discloses disclosing that EFL teachers' negative emotions may affect their pedagogical success and teaching outcome, to name but a few. In this sense, it must be admitted that in order to formulate teachers' positive emotional identity of their profession which can further facilitate teaching and learning, there exists a long-running battle of China's teachers for more decent work, emotional wellbeing and the remedy of overworked but underpaid profession. This requires the close cooperation of the leading sectors, education institutions, teachers and other stakeholders as well as the construction of systematic

emotional regulation mechanics that seem to be missing in China for teachers.

Limitations and Implications

A major limitation of this study lies in its insufficient data with regard to the participants' gender, education background, age and other information, the analysis of which might lead to richer and deeper research findings. As discussed above, identity is a complicated issue, and the construction and reconstruction of TESOL teachers' role identities are usually affected by various contexts. Since the intersection of these factors may influence a language teacher's professional identity, researchers could focus more on how in-service English teachers' identities are influenced and shaped by these factors or on the relationships between their identities and the various contexts they have been exposed to. Besides, a teacher's perception of professional identity can determine their teaching practices as well as teaching proficiency. The research presented in this paper leaves a gap that little insight is drawn regarding how effective the participant English teachers' teaching is or the teaching efficiency of the English teachers who have different role identities. Future research may focus on this so that more valuable insight could be drawn for teacher development.

Another non-negligible limitation of this study is about the data collection method. Although drawing has an advantage over other research methods in the manner that it could explore the subjects' perceptions more deeply, chances are that people may read the same picture in different ways and thus generate differing views due to the subjectivity of drawing itself. In this case, in future application of drawing as a research method, despite of the requirement of verbal explanation for the analysis accuracy of drawings and the content analysis used in this study to minimize the subjectivity and make certain the result validity, researchers may need to take into consideration the discussion of the pictures with the participants during data collection and analysis process in order to better understand the formulation of drawings subject to "the conversation that occurred around them and what context brought them into being" (Woodhouse, 2012, as cited in Horne, Masley, & Allison-Love, 2017, slide 16).

Conclusion

The charm of teacher identity lies in its flexibility and diversity. In this study, by using drawings to depict understanding of teaching English in China, the English teachers who were at their mid-career stage presented a range of professional identities. Generally, they considered their teacher selves positive, capable and versatile, and their professional identities were related to a knowledge transmitter whose main responsibility was to teach English by utilizing ICT and pedagogical skills. This somehow reflects a traditional teacher role in China. However, it is interesting and even inspiring to note that some teachers have gradually developed a sense of cooperation, which invites the participation of students, colleagues, family members and other stakeholders and moves towards a student-centered mindset that is different from the traditional teacher identity that is the dominant knowledge transmitter, which shows the diversity of attributes and role identities English teachers have. Despite the positive teacher identities that most participants have conveyed and are often discussed in literature and official discourses, some English teachers have also expressed their negative feelings with their

profession, especially with their little economic value. Professional identity is shaped by various factors, whether that being personal or contextual. It must be acknowledged that potential career challenges may weaken teachers' positive emotions in the reality of teaching as they encounter challenges and difficulties at workplace. This research reveals that some in-service teachers may be burdened with negative feelings as teachers encounter different practices in schools and professional development. This does shed light on the necessity in China of emotional positive change from a teacher, which is "the empowerment of harmony to achieve the homeostasis of the teacher's teaching system, an educational practice based in the handling of emotions from the acknowledgement of one self" (Flores, 2015, n.p.) so that they can promote learning and positive emotional status in their profession. This, along with teacher professional development, will be a continuous process that requires the close cooperation of various stakeholders.

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References

- Alkaromah, A. H., Fauziati, E., & Asib, A. (2020). Students' perception on the Information and Communication Technology (ICT) tools in English language teaching. *ELS Journal on Interdisciplinary Studies in Humanities*, 3(1), 122-129. DOI: 10.34050/els-jish.v3i1.9522
- Amatea, E. S. (2013). *Building culturally responsive family-school relationships* (2nd ed.). London: Pearson Education.
- Ballantyne, J., & Grootenboer, P. (2012). Exploring relationships between teacher identities and disciplinarity. *International Journal of Music Education*, 30(4), 368–381. DOI: 10.1177/0255761412459165
- Barkhuizen, G. (2017). Language teacher identity: An introduction. In G. Barkhuizen (Ed.), *Reflections on language teacher identity research* (pp.1-11). New York : Routledge, Taylor & Francis Group.
- Beauchamp, C., & Thomas, L. (2009). Understanding teacher identity: an overview of issues in the literature and implications for teacher education. *Cambridge Journal of Education*, 39(2), 175–189. DOI: 10.1080/03057640902902252
- Beijaard, D., Meijer, P. C., & Verloop, N. (2004). Reconsidering research on teachers' professional identity. *Teaching and Teacher Education*, 20, 107-128. DOI: 10.1016/j.tate.2003.07.001
- Beltman, S., Glass, C., Dinham, J., Chalk, B., & Nguyen, B. (2015). Drawing identity: beginning pre-service teachers' professional identities. *Issues in Educational Research*, 25(3), 225-245. Retrieved from <http://www.iier.org.au/iier25/beltman.html>
- Berenskoetter, F. (2010). Identity in international relations. In R. A. Denmark (Ed.), *The international studies encyclopedia* (Vol. VI, pp. 3595–3611). DOI: 10.1093/acrefore/9780190846626.013.218
- Bucher, B., & Jasper, U. (2016). Revisiting 'identity' in international relations: From identity as substance to identificaitons in action. *European Journal of International Relations*, 23(2), 391–415. DOI: 10.1177/1354066116644035

- Christensen, J., Burke, P., Fessler, R., & Hagstrom, D. (1983). *Stages of teachers' careers: Implications for professional development*. Washington: The ERIC Clearinghouse on Teacher Education.
- Cortazzi, M., Jin, L., & Wang, Z. (2008). Cultivators, cows and computers: Chinese learners' metaphors of teachers. In T. Coverdale-Jones & P. Rastall (Eds.), *Internationalising the university: The Chinese context* (pp. 107–129). New York: Springer.
- Côté, J. E. (1996). Sociological perspectives on identity formation: the cultural-identity link and identity capital. *Journal of Adolescence*, 19(5), 417–428. DOI: 10.1006/jado.1996.0040
- Cottingham, M. D. (2016). Theorizing emotional capital. *Theory and Society*, 45(5), 451-570. DOI: 10.1007/s11186-016-9278-7
- Cottingham, M. D. (2017). Caring moments and their men: Masculine emotion practice in nursing. *NORMA*, 12, 270–285. DOI: 10.1080/18902138.2017.1312954
- Cubukcu, F. (2013). The significance of teachers' academic emotions. *Procedia – Social and Behavioral Sciences*, 70(2013), 649-653. DOI: 10.1016/j.sbspro.2013.01.105
- Day, C., Kington, A., Stobart, G., & Sammons, P. (2006). The personal and professional selves of teachers: Stable and unstable identities. *British Educational Research Journal*, 32(4), 601–616.
- Deng, F. M. (1995). *War of visions: Conflict of identities in the Sudan*. Washington, DC: Brookings.
- Diem-Wille, G. (2001). A therapeutic perspective: the use of drawings of child psychoanalysis and social science. In T. V. Leeuwen & C. Jewitt (Eds.), *The handbook of visual analysis* (pp. 119–133). London: SAGE Publications.
- Elmer, K., & Crothall, G. (2016). *Over-worked and under-paid: the long-running battle of China's teachers for decent work*. Retrieved from <https://www.clb.org.hk/sites/default/files/Teachers%20final.pdf>
- Fan, H., Ren, X. (2018). The construction of an identity as “ESL teacher” in classrooms and tutorials. *Studies in English Language Teaching*, 6(1), 70–85. DOI: 10.22158/selt.v6n1p70
- Farrell, T. S. C. (2011). Exploring the professional role identities of experienced ESL teachers through reflective practice. *System*, 39(1), 54–62. DOI: 10.1016/j.system.2011.01.012
- Farrell, T. S. C. (2017). *Sociolinguistics and language teaching*. Annapolis Junction: TESOL Press.
- Finke, P., & Sökefeld, M. (2018). Identity in anthropology. In H. Callan (Ed.), *The International Encyclopedia of Anthropology* (pp. 3091–3103). DOI: 10.1002/9781118924396.wbiea2142
- Flores, R. P. (2015). *Brief therapy mindfulness: The teaching change*. Bloomington: Palibrio.
- Flynn, N. (2007). What do effective teachers of literacy do? Subject knowledge and pedagogical choices for literacy. *Literacy*, 41(3), 137-146. DOI: 10.1111/j.1467-9345.2007.00452.x
- Gleason, P. (1983). Identifying identity: A semantic history. *Journal of American History*, 69(4), 910–931. DOI: 10.2307/1901196
- Gong, S., Chai, X., Duan, T., Zhong, L., & Jia, Y. (2013). Chinese teachers' emotion regulation goals and strategies. *Psychology*, 4(11), 870-877. DOI: 10.4236/psych.2013.411125
- He, Y. (2016, May 27-29). *The role of a teacher in teaching practice of Chinese lacquerware*. International Conference on Education, Management and Computer Science (ICEMC 2016), Shenyang.
- He, Y., & Kroiss, D. (2020). Strengths-based mentoring for preservice ESL teacher professional identity development: A self-study of teacher education practices. In B. Yazan & K. Lindahl (Eds.), *Language teacher identity in TESOL: teacher education and practice as identity work* (pp. 250–270). New York:


- Routledge.
- Hirshman, L. R. (1992). The philosophy of personal identity and the life and death cases. *Chicago-Kent Law Review*, 68(1), 91–108. Retrieved from <https://scholarship.kentlaw.iit.edu/cgi/viewcontent.cgi?article=2859&context=cklawreview>
- Hogg, M. A., & Ridgeway, C. L. (2003). Social identity: Sociological and social psychological perspectives. *Social Psychology Quarterly*, 66(2), 97–100. Retrieved from <http://www.jstor.org/stable/pdfplus/1519841.pdf>
- Horne, M., Masley, S., & Allison-Love, J. (2017). Drawing as a research tool: What does it add? [PowerPoint slides]. Retrieved from <https://core.ac.uk/download/pdf/84143887.pdf>
- Huberman M. (1993). *The lives of teachers*. New York: Teachers College Press.
- Jepperson, R. L., Wendt, A., & Katzenstein, P. J. (1996). Norms, identity, and culture in national security. In P. J. Katzenstein (Ed.), *The culture of national security: Norms and identity in world politics* (pp. 33–78). New York: Columbia University Press.
- Jin, L., & Cortazzi, M. (2016). Engineering the soul: Construction and sacrifice in the teaching profession. In A. Lijegren & M. Sakes (Eds.), *Professions and metaphors: Understanding professions in society* (pp. 130–146). New York: Routledge.
- Kanno, Y., & Stuart, C. (2011). Learning to become a second language teacher: Identities-in-practice. *The Modern Language Journal*, 95(2), 236–252. DOI: 10.1111/j.1540-4781.2011.01178.x.
- Kelly, L. B. (2018). Preservice teachers' developing conceptions of teaching English learners. *TESOL Quarterly*, 52(1), 110–136. DOI: 10.1002/tesq.375
- Krippendorff, K. (2004). *Content analysis: An introduction to its methodology* (2nd ed.). California: Sage Publications, Inc.
- Li, M. (2010). EFL teachers and English language education in the PRC: Are they the policy makers? *The Asian-Pacific Education Researcher*, 19(3), 439–451. DOI: 10.3860/taper.v19i3.1852
- Mair, M., & Kierans, C. (2007). Descriptions as data: Developing techniques to elicit descriptive materials in social research. *Visual Studies*, 22(2), 120–136. DOI: 10.1080/14725860701507057
- Makhwathana, R. M., Mudzielwana, N. P., Mulovhedzi, S. A., & Mudau, T. J. (2017). Effects of teachers' emotions in teaching and learning in the foundation phase. *Journal of Psychology*, 8(1), 28–35.
- Miller, J. (2009). Teacher identity. In A. Burns, & J. C. Richards (Eds.), *The Cambridge guide to second language teacher education* (pp. 172–181). New York: Cambridge University Press.
- National Institute of Education Sciences. (2014). Retrieved from <http://www.nies.net.cn/ky/xsqy/201407/P020140709379202322736.pdf>
- Nguyen, M. H. (2017). Negotiating contradictions in developing teacher identity during the EAL practicum in Australia. *Asia-Pacific Journal of Teacher Education*, 45(4), 399–415.
- Nguyen, M. H. (2019). *English language teacher education: A sociocultural perspective on preservice teachers' learning in the professional experience*. Singapore: Springer.
- OECD. (2016). *Education in China: A snapshot*. Retrieved from <https://www.oecd.org/china/Education-in-China-a-snapshot.pdf>
- Othman, J., & Senom, F. (2020). *Professional development through mentoring novice ESL teachers' identity formation and professional practice*. Oxon: Routledge.

- Oxford Dictionaries. (2012). *Paperback Oxford English Dictionary* (7th ed.). Oxford: OUP Oxford.
- Pasban, M., & Nojehdeh, S. H. (2016). A review of the role of human capital in the organization. *Procedia – Social and Behavioral Sciences*, 230(2016), 249-253. DOI: 10.1016/j.sbspro.2016.09.032
- Pennington, M. C. and Hoekje, B. J. (2014). Framing English language teaching. *System*, 46(4), 163–175.
- Pillen, M. T., Den Brok, P. J., & Beijaard, D. (2013). Profiles and change in beginning teachers professional identity tensions. *Teaching and Teacher Education*, 34, 86–97. DOI: 10.1016/j.tate.2013.04.003
- Pishghadam, P., Zabetipour, M., & Aminzadeh, A. (2016). Examining emotions in English language learning classes: a case of EFL emotions. *Issues in Educational Research*, 26(3), 508-527. Retrieved from <https://www.iier.org.au/iier26/pishghadam-2.pdf>
- Qi, X. (2018). Teachers' roles in China's EFL classes adopting the PAD Mode. *Journal of Language Teaching and Research*, 9(4), 798–802. DOI: 10.17507/jltr.0904.17
- Raman, Y., & Yiğitoğlu, N. (2018). Justifying code switching through the lens of teacher identities: novice EFL teachers' perceptions. *Quality and Quantity*, 52(5), 2079–2092. DOI:10.1007/s11135-017-0617-1
- Ross, M. H. (2000). Culture and identity in comparative political analysis. In L. Crothers & C. Lockhart (Eds.), *Culture and politics* (pp. 39–70). DOI: 10.1007/978-1-349-62397-6_3
- Sachs, J. (2005). Teacher education and the development of professional identity: Learning to be a teacher. In P. Denicolo & M. Kompf (Eds.). *Connecting policy and practice: Challenges for teaching and learning in schools and universities* (pp. 5-21). New York: Routledge.
- Salinas, D., & Ayala, M. (2018). EFL student-teachers' identity construction: A case study in Chile. *HOW*, 25(1), 33-49. DOI:10.19183/how.25.1.380.
- Sayer, P. (2012). *Ambiguities and tensions in English language teaching: Portraits of EFL teachers as legitimate speakers*. New York: Routledge.
- Scott, J. (2014). *A dictionary of sociology*. Oxford: Oxford University Press.
- Sökefeld, M. (1999). Debating self, identity, and culture in anthropology. *Current Anthropology*, 40(4), 417–448. DOI: 10.1086/200042
- Sollberger, D. (2013). On identity: from a philosophical point of view. *Child and Adolescent Psychiatry and Mental Health*, 7(1), 29–38. DOI: 10.1186/1753-2000-7-29
- Son, J. B. (2018). *Teacher development in technology-enhanced language teaching*. Cham: Springer International Publishing.
- Stanley, C. (1999). Learning to think, feel, and teach reflectively. In J. Arnold (Ed.), *Affect in language learning* (pp. 109–124). Cambridge, UK: Cambridge University Press.
- Tajfel, H. (1978). *Differentiation between social groups: Studies in intergroup relations*. London, England: Academic Press.
- Tao, J., & Bao, X. (2018). Identity construction of ESP teachers in a Chinese university. *English for Specific Purposes*, 49(2018), 1-13. DOI: 10.1016/j.esp.2017.09.003
- Tejeda, S. A., de González, B. S. G., & de Jesús López Martínez, C. L. (2016). How novice EFL teachers regulate their negative emotions. *How*, 23(1), 30-48. DOI: 10.19183/how.23.1.299
- Toraby, E., & Modarresi, G. (2018). EFL Teachers' Emotions and Learners' Views of Teachers' Pedagogical Success. *International Journal of Instruction*, 11(2), 513-526. DOI: 10.12973/iji.2018.11235a
- Vignoles, V. L. (2011). Identity motives. In S. J. Schwartz, K. Luyckx, & V. L. Vignoles (Eds.), *Handbook of*

- identity theory and research* (pp. 403-432). New York: Springer
- Walsh, C. A., Rutherford, G., & Crough, M. (2013). Arts-based research: Creating social change for incarcerated women. *Creative Approaches to Research*, 6(1), 119–139. Retrieved from <http://s3.amazonaws.com/arena-attachments/212468/87503105e614fc383da1eed47f96f135.pdf>
- Wang, L., & Du, X. (2014). Chinese teachers' professional identity and beliefs about the teacher-student relationships in an intercultural context. *Frontiers of Education in China*, 9(3), 429–455.
- Wang, T. (2006). *Understanding Chinese culture and learning*. Paper presented at the AARE Annual Conference, Adelaide. Retrieved from <https://www.aare.edu.au/data/publications/2006/wan06122.pdf>
- Wang, Y., Liu, X., & Zhang, Z. (2018). An overview of e-learning in China: History, challenges and opportunities. *Research in Comparative and International Education*, 13(1), 195-210.
- Wei, N. (2016). The necessity of the role change for English teachers in China's junior high schools. *Studies in Literature and Language*, 12(3), 55-58. DOI:10.3968/8224
- Xiong, T., & Xiong, X. (2017). The EFL teachers' perceptions of teacher identity: A survey of Zhuangang and Non-zhuangang primary school teachers in China. *English Language Teaching*, 10(4), 100–110.
- Yang, X. (2013). *Conception and characteristics of expert mathematics teachers in China*. DOI: 10.1007/978-3-658-03097-1
- Yang, X., Kaiser, G., König, J., & Blömeke, S. (2018). 3. *Curriculum Studies*, 50(5), 638-653. DOI: 10.1080/00220272.2018.1502810
- Zacharias, N. (2010). The Teacher Identity Construction of 12 Asian Teachers in TESOL Graduate Programs. *Journal of Asia TEFL*, 7(2), 177-197. DOI: 10.25170%2Fijelt.v12i1.831

Author Information


Hengzhi Hu

 <https://orcid.org/0000-0001-5232-913X>

National University of Malaysia
43600 UKM, 43600 Bangi, Selangor
Malaysia


Contact e-mail: p108937@siswa.ukm.edu.my

Feifei Huang

 <https://orcid.org/0000-0001-8209-7018>

Monash University
Wellington Rd, Clayton VIC 3800
Australia

Ying He

 <https://orcid.org/0000-0003-3051-1891>

Monash University
Wellington Rd, Clayton VIC 3800
Australia

Triumphs and Struggles in Teaching the English Language

Precious Domingo

Abstract

This study aims to explore the current situations of the teaching and learning of the English language at Visayas State University. It reveals the joys and pains of the teachers in teaching the target language. The key informant in this study is the teachers handling the English language subject and the data were gathered through interviews. Using thematic analysis, it was found out that teachers see teaching a satisfying job not mainly because of the salary but because they can practice their forte. The progress that they see in the students in the use of the English language provides self-satisfaction for the teachers. The pains that teachers experience in their current situation in English language teaching revolves around the attitude and motivation of the students in the learning process, the lack of resources that can be used in teaching, the learning environment such as the unconducive classroom and lack of internet. The support of the school administration for the teachers' training and professional development is seen as a problem and needs full support.

Keywords: English language, Teaching, Issues

Introduction

Education is necessary for an economy to become more productive. It is an agent of change that contributes to economic growth. In the 21st century, the new educational expectations for a graduate is to have the skills of critical thinking and problem solving, inter and intracultural communication, innovation, digital knowledge, effective oral and written communication, collaboration and teamwork (Shaaban, 2016). One of the 21st-century skill as mentioned is an effective oral and written communication. In an article, an interview with Andrew King, IDP Education director, mentioned that English remains the lingua franca of international business and diplomacy. Employers in today's global market want people that have international experience, good qualifications, and have high proficiency in spoken and written English (Marcelo, 2010). It is the responsibility of the educational system to train individuals to actively participate in political, economic, and social relations and it would be impossible for a person to actively contribute to a global field without the required proficiency in English.

In the era of globalization, the English language plays a major role in the progress of a country. It is the main language used in international banking and business. Everyone needs to learn the language to communicate at the international level. It is the main language of printed and non-printed media and more newspapers and books

are written in English than any other language. In the education sector, English is essential in the field even in countries where it is not a major language. It is the most dominant language in science, technology, and math. Most of the research and studies in any given scientific field is written in English (Naved, 2019). The need for English as a lingua franca of the global community becomes more critical in both developing and developed countries.

In the Philippines, Filipinos learned the English language when it was introduced by the Americans. They made English as the medium of instruction in the public school system, thereby spreading the language throughout the country. The Philippines was freed from the US but influence in the use of English is still present. Currently, English is a medium of instruction in primary, secondary, and tertiary levels. English is not a native language in the country, therefore it is the responsibility of the educational system to train individuals to develop skills in listening, speaking, reading, and writing in foreign languages, particularly English. Since it is difficult to compete in the global arena without a certain level of proficiency in English, English is regarded as not a foreign language to be learned, but a qualification an individual should possess (Wolff, 2003). English language teaching and learning in the Philippines can be reflected on the state of the English proficiency of the people. Getting a certain level of proficiency in English has been emphasized in numerous papers and report all over the world. The Philippines is recognized as having a large number of Filipinos who at least have some degree in speaking the English language. However, a couple of researches show that proficiency in the English language of the country is deteriorating.

Looking closely at the language proficiency of the tertiary level graduates, the level of proficiency in the English language falls below what is expected. These can be seen in several articles (Jimenez, 2018; Morallo, 2018; Macasinag, 2011). Philippines advantage in English proficiency is fastly eroded by declining mastery of the English language of the graduates. In primary education, learners are expected to build a strong foundation in the English language and further develop it at the secondary level so that when learners reach the tertiary level they are assumed to have a required level of English proficiency. However, more than ninety-percent of college graduates in the Philippines are not yet equipped for English-speaking roles and with the recent test conducted by Hopkins, the average score of around 10,000 Filipino college students who took Test of English for International Communication (TOEIC) is 631 out of 990, equivalent to B1 or intermediate level.

Another study conducted by HA Cervantes Knowledge Systems, Inc., which administers the Test of English for International Communication (TOEIC) took sample measurements of graduating students for the year 2001-2002 from selected educational institutions in Metro Manila. The study revealed that graduates' English language proficiency is only at the level of basic working proficiency. This level of proficiency indicates that "the person hardly understands native English speakers or speakers of English vis international meetings, or could they sustain fluency & accuracy. In IELTS 2008, the Philippines is no longer the top English speaking country in Asia (Marcelo, 2010).

In the SWS self-assessed survey conducted, Filipinos reported a decline in English proficiency from the ability to speak, write, and think in English (Salazar, 2007). Having this knowledge on the condition of English

proficiency of the tertiary graduates it becomes a common belief that Philippine education is not successful in teaching English (Tosun, 2012). The status of the English proficiency of students in the country is alarming. Several factors can be a reason for this such as lack of facilities, large class size per classroom, and inadequacy of learning materials. The current status of English language teaching and learning in the country are not achieving the necessary levels in reading, listening, writing, and speaking (Oktay, 2015).

To dig deeper into the problem will unlock the issues faced by teachers in teaching ESL at the tertiary level. Problems faced by English teachers at the primary or secondary level possibly differ from the problems faced at the tertiary level. Moreover, the status of ESL teaching in one of the universities in the region varies to other regions considering the location and technological progress. This research aims to give light to the difficulties in English at a higher education level. The issue is important because identifying the root problem is necessary to provide a suitable solution, prevent wastage of effort, time, and finances of the government. Results are useful to administrators, teachers, and students. Issues in teaching English at the tertiary level will be tackled to provide awareness to tertiary teachers and higher administrators of the current situations of ESL at Visayas State University. Further, results may be used as a guide in making decisions. Research findings can also be significant in describing overall issues in teaching English in the Philippines and in exploring the factors that influence the quality of teaching of the English language in the country. Further, the research result presents the current situations of ESL teaching and provides recommendations.

Statement of the Problem

This study aims to determine the on-going problems regarding English language teaching in the Philippines, particularly in the higher education context. It aims to answer the central question of what are the issues in English language teaching. Further, this study also looks into the following:

1. What are the issues and concerns in teaching the English language do teachers encounter in the higher education level?
2. What coping mechanisms are employed by teachers in teaching the English language to the students at the tertiary level?

Theoretical Framework

This study aimed to identify the difficulties of teachers in teaching English as a second language in higher education. To do this the researcher looked into the different aspects which may impact the teaching and learning process. The researcher anchored into the different pedagogical theories in teaching a second language, the motivation and anxiety in learning the language, and the effect of the ideal learning environment in learning the English language as these are some factors that affect the teaching and learning process. Teaching a language has many different features. A teacher teaches not only the four macro skills but also encourages students to have enthusiasm, a good attitude, and motivation towards English. Furthermore, teachers have to understand the factors that play a role in students' learning (Songbatumis, 2017). Language teaching requires teachers to help students develop both academic and personal beliefs.

Pedagogically, teaching foreign languages has been performed via different methods, especially for adults who are learning a language in higher education: Grammar Translation Method (GTM), Direct Method, Audio-Lingual method, Communicative Approach, Lexical Approach. Grammar translation method evolved from the classical method of teaching which has a typical feature of being teacher-centered, vocabularies are taught through translation, memorization of grammar rules, and elaborate discussion of grammar rules. The direct method of teaching was established as a response to the Grammar-Translation method. It requires learners to immerse themselves in the same way as when a first language is learned. All teaching is done using the target language, grammar is inductively taught, there is a focus on speaking and listening, and only useful 'everyday' language is taught. The weakness in the Direct Method is its assumption that a second language can be learned in the same way as a first, when in fact the second language is learned in very different conditions

The audio-lingual method shared several features to direct method as both were reactions to the seeming failure of the grammar-translation method. The audio-lingual method bans the use of native language and prioritizes the skills listening and speaking over reading and writing. It anchors on the behaviorism and structuralism and prioritizes grammar over vocabulary and accuracy over fluency (<https://www.tefl.net/methods/audiolingual.htm>). Communicative approach on the other hand is different from the first three methods in English language teaching mainly because it is more learner-centered and emphasizes interaction as a way of learning the English language. It highlights role-play, pair work, and group work activities. Learning of specific grammatical rules is less emphasized. Obtaining native-speaker-like fluency and pronunciation is important. Communicative competence of students is assessed on their level rather than on their explicit knowledge.

Motivation and anxiety also play a role in learning English as a second language. Motivation is viewed as part of a general "affective filter" (Krashen, 1985). High intrinsic motivation and low affective filter may help a learner learn the English language while low intrinsic motivation and high affective filter may hinder the learner from learning the English language. The conducive learning environment, appropriate learning materials, and helpful learning facilities also key to learn a language, which in this is the English language. Developing a classroom environment conducive to learning involves providing the physical space, making the students cooperate, constructing a common environment, and maintaining an optimistic classroom climate and culture.

Review of Related Literature

English language teaching in the Philippines has faced several difficulties. In the early years, during the American occupation, some problems mentioned include funding and delay in the transport of instructional resources and materials and issues of pedagogy in language teaching. The instruction in the English language during this time highly emphasized on the grammar and structure and disallow the use of the first language which is inevitable for a non-native speaker of the English language (Arriola, 2017). Aside from the problems in pedagogy, it is mentioned in the article of Otaño cited by Arriola (2017) some other concerns in language teaching: short length of school session, lower number of years of instruction, low number of text and supplementary materials, high number of untrained teachers, large class size, unclear language models. These

problems however still exist today.

Problems in teaching English as a second or foreign language not only exist in the Philippines but also other countries. In Arab for example, Shaaban (2016) identified the challenges faces by Arab learners in teaching and learning the English language. These include the instructional materials which are not suitable and are not based on the needs of the learners. The cultural considerations are also taken for granted, in the textbooks for instance. The themes and values of imported foreign books are irrelevant or of little interest to Arab learners. Zughoul (2003) as cited by Shaaban recommended avoiding the inclusion of western values, lifestyle, ideals, etc. Instead, it should be used as a context of comparison and contrast between the native and the target culture. Teachers' qualifications also posed a problem in the teaching of English in Arab students. There is a faulty assumption of school administrators that teachers who have a degree in English don't need additional training or professional development, and those teachers who are given professional development think of themselves as not qualified enough. The language to be used as a medium of instruction, the choice between the use of first language or the international language is also an issue.

Other problems as cited by Shaaban is the study of Fareh (2010) which the problems he identified include lack of preparation of English teachers; using teacher-centered the method most often; students' lack of English language exposure outside the classroom. As cited also by Shaaban is the study of Bacha (2002), Tahaineh (2010), and Umair (2011) which have enumerated other sets of issues: failure to comprehend and organize resources, lack of time management, absence of peer work, lack of resources that could expose them to the target language, and lack of language planning. Kashikar (2016) identified problems and solutions in teaching English as a Second language in India. The concerns he mentioned include the heterogeneous nature of the classroom, ignorance about the use of technology, lack of interest, and presence of fear, lack of use of the English language in social communication. Students, different abilities, and backgrounds posed problems for teachers as (s)he has to keep rapport with every individual in the class. The lack of awareness on the use of new technology is also seen as a problem. There are rural colleges that though have established language laboratories, students never use it unless compelled, because they lack the knowledge on how to operate the technology. Students' lack of interest in learning the English language hindered them in taking initiatives in using the language. Shyness overpowers and restricts them from engaging in a communicative approach.

In the study of Yusob (2018) about the challenges of teaching grammar in Malaysia, he enumerated the challenges experienced by lecturers in teaching grammar at the undergraduate level. Findings show that lecturers faced six challenges namely the lack of experience of lecturers in teaching grammar, students' low or weak proficiency, lack of facilities, teachers' negative perceptions on the teaching of grammar, and preparation of grammar lessons. Yusob recommended giving an intensive course for English teachers who lack the necessary qualifications and experiences, providing better classroom facilities, and assessing students' proficiency before the first class.

The same issues are highlighted by Songbatumis (2017) in her study on the challenges of teaching English in Indonesia. The study investigates the issues of teaching English form the teachers' point of view. Results show

that challenges emerged partly from the students, partly from the teachers, and partly from the school facilities. Students are challenged by their lack of vocabulary mastery, low concentration, lack of discipline, boredom, and speaking problems. Meanwhile, teachers' challenges are a shortage of teachers' training, language proficiency issue, limited mastery of teaching methods, unfamiliarity to IT, and lack of professional development. Also, facilities issues including inadequate resources and facilities, and time constraint.

Michalak and Bavli (2018) have identified the challenges of teaching English as a foreign language in Turkey and Poland. Among the problems that emerged is the low motivation of students in learning English which can be seen by students less interested in their English classes. Another is teaching large class sizes, and the short time the students spend in learning English at school. Teachers also exclaimed their dissatisfaction in in-service development and activities that is out of focus. Further, teachers also experience system reform in education in Poland and Turkey.

Due to the difficulties and concerns in teaching and learning English to non-native speakers, the direct impact can be seen in the proficiency in using the English language. Though the Philippines is considered to have a certain level of proficiency in using and speaking the English language, it is still seemed to be problematic. In an article by Garcia (2007) he mentioned that the Philippines has not live-up the rank as being the third-largest English-speaking nation in the world. It is back-up by the result of the SWS survey in 2006 which shows a significant decline in the aspect of self-assessed English language proficiency compared to the result of the 1993 and 2000 SWS surveys. Similar findings are shown from the test result of the Test of English for International Communication (TOEIC). They conducted a proficiency test in the workplace context. More than 4,000,000 test-takers took the exam every year. The results of the test-takers showed that there is a need to improve their communication skills in English.

The Philippine government is providing solutions to intensify the quality of education in the country. These include the following decisions made: The Department of Education (DepEd) adopted the K-12 Curriculum that extended the years of basic education from 10 years to 12 years (13 including Kindergarten). The country has 10 years of basic education. The additional two years in high school (senior high school) aimed to capacitate the high school students in knowledge and skill for them to become better prepared not only for the tertiary level but also for work through enhancement of necessary skills. Through several programs of the government, education becomes more accessible. In 2015, Education for All (EFA) program was established with four objectives: to provide education options for all out-of-school adults and young people; eliminate drop-outs and repetition during the first three years of school; encourage the completion of a full cycle of basic schooling and commit to the attainment of basic education competencies for everyone (Education reform in the Philippines). President Rodrigo Duterte also signed Republic Act 10931 or the "Universal Access to Quality Tertiary Education Act" granting free tuition and other fees for students in state universities and colleges, as well as local universities and colleges and technical-vocational institutions. There is also the Student Loan Program set up to help college students augment their financial needs (Fernando, 2019).

Examining closely on the solutions provided by the government, these aim to answer the issues in education in

general, but the issues specific for English language teaching was not given notice. Several studies have been conducted to explain the issues in English language teaching and learning but mostly focused on teaching English in pre-higher education levels. Consequently, the learners and teachers of English in higher education contexts have been overlooked. Teaching English at the tertiary level is naturally much different from teaching the language in other levels of education, in secondary school or elementary. The difference may be on the curriculum, learning environment, kind of students, and teaching approach or content delivery. Due to its difference from other levels of education, in all components, teaching English to young adult learners at the college level might come with many problems or constraints encountered by teachers. Lynch (2008) points out three most crucial problems of English language teaching and learning classrooms such as 1) lack of learners' motivation, 2) insufficient time, resources and materials, and 3) over-crowded English classes.

Study on teaching English at tertiary school has been a topic of research in another country. Yusob (2017) studied the challenges of teaching grammar at the tertiary level in Malaysia; Songbatumis (2017) researched the challenges in teaching English faced by English teachers in Indonesia; Anjaneyulu (2015) researched on the problems faced by teachers in teaching the English language in India. All the studies are conducted in the context of the neighboring Asian countries. This research however aims to give light to the difficulties in English in higher education levels in the Philippine context.

Scope and Limitations

The study was conducted in the second semester of the school year 2019-2020 at Visayas State University. The data gathered for this research was limited to the experiences shared by the participants through interviews and focus group discussions. Using a qualitative phenomenological approach, individual voices of each participant were given weight. Participants were teachers handling English related subjects and do include non-English language teachers. One significant limitation of this study is that findings cannot be generalized. The findings apply mainly to the sample used in the research.

Methodology

This part of the study provides information about research design, research locale, participants and sampling procedure, scope and limitations, data gathering procedure, data analysis procedure, and ethical considerations.

Research Design

The qualitative research method was used in the study, phenomenological research study method in particular. Qualitative research searched for meaning in ways in which quantitative analysis cannot. Data collected doesn't necessarily contain numeric quantities. The qualitative data that the researcher gathered in the investigation draws a metaphorical image of the participants' take on the world. Qualitative research empowers participants to share their stories, especially those whose voices are infrequently heard (Creswell, 2013). The study utilizes a phenomenological approach. The key elements of phenomenological inquiry are to understand individual(s)

lived-experiences in a specific phenomenon which in this case is the English language teaching and learning at Visayas State University. The purpose of this design is to report the real status of the teaching and learning of the English language as experienced by English teachers in VSU. Phenomenological research depends heavily on participant (s) accounts which will be then interpreted by the researcher. According to Jasper (1994), a phenomenological study considers the “real meaning of phenomena as explored through the experiences described by the individual”.

Research Locale

The research setting of this study is the Visayas State University's main campus located in Baybay, Leyte. The university specializes in agriculture. It offers various programs- Agro-Industry, Engineering, Information Technology, Hospitality Management, Tropical Ecology, Veterinary Medicine, Forestry, Fishery, and Food Science and Technology, Education and Communication, and has produced quality graduates. The community where VSU is located is not fully urbanized. The adjacent city going south is Baybay--15 kilometers away and going north is Ormoc--42 kilometers away. The dialect used in the community is Bisaya, but then one can hear Waray-Waray speakers since a lot of students from the Waray speaking community are enrolled in the university, and Baybay is also near to Waray speaking municipalities. The language expected to use during classes in the university is the English language. Further, English as a general subject is compulsory to all courses in VSU, thus all students are required to enroll corresponding units. The medium of instruction is English which the students and instructors, like in any other university in the Philippines, are expected to use in communication.

Research Respondents

The respondents in this research were selected using the following criteria:

1. The participant is an English teacher at a tertiary level with 2 or more years of experience in the field of teaching.
2. The participant is in active service (not in study leave, etc) upon the conduct of the study.
3. The participant is an English major graduate.
4. The participant should be of legal age.
5. The participant is willing to be interviewed and serve in the study
6. The participant's educational attainment should fit in any of the following: a. Doctorate holder; b. With doctorate units earned at least 27 units; c. Master's degree holder.

With regards to the sample size for phenomenological studies, Creswell (1998) recommends 5 – 25 and Morse (1994) suggests at least six but ultimately, the required number of participants should depend on when saturation is reached, thus the researcher identified six participants.

Sampling Technique

The participant selection in this research study is purposeful sampling wherein the participants are selected

because they can best provide information about the research questions and enhance understanding of the phenomenon under study. According to Cresswell, purposeful sampling involves the identification and selection of individuals or groups of individuals that are knowledgeable about or experienced with the phenomenon (Cresswell & Plano Clark, 2011). Particularly, the researcher employed criterion sampling which according to Patton (2001) involves selecting participants that meet some predetermined criteria. In this research, the criteria for participant selection were predetermined by the researcher. Other than knowledge and experience, it is important to note the importance of participants' availability and willingness to participate and the ability to articulate experiences and opinions in an expressive and reflective manner (NCBI, 2020)

Research Instrument

The researcher prepared interview questions for the participants. These questions were open-ended questions that aimed to acquire as much information from the participants regarding the phenomenon of interest. The questions were reviewed for grammar and sentence by qualified persons.

Focused Group Discussion Questions

1. What are your experiences in English language teaching?
2. Do you find teaching English as a Second language enjoyable? Why or why not?

Semi-Structured and In-depth Interview Questions

1. Preliminaries
 - What are your degree and specialization?
 - How many years have you been teaching?
 - How long have you been teaching English?
2. What are your joys in teaching English as a second language?
3. What are your pains in teaching English as a second language?
4. What are the difficulties that you meet in teaching the English language as a second language?
5. What problems are common among the students in learning English as a second language?
 - How do you solve the problems that you encounter by yourselves?
 - What are the coping mechanisms in dealing with those commonly observed problems?

Data Gathering Procedure

This study aimed to recognize college teachers' perspectives regarding problems in the language teaching process thus a semi-structured interview was conducted to collect the data. An invitation for an interview was sent to the participants through e-mail. Before the interview, they were informed of the purpose of the study and assured that the data gathered would be confidential and that their names were concealed. The study had a face-to-face interview where participants will answer open-ended questions about the problems they have

experienced or observed during their language learning process and their suggestions for each problem they stated. The interview took place in the participants' own offices at the college or in a private conference room to offer them the most secure environment. Semi-structured interviews were employed to collect data for this study. This allows the interviewer or interviewee to generate data and discuss emergent issues throughout the interview (Horton, Macve, & Struyven, 2004).

In the interviews, they were asked to (i) discuss their joys and pains in the English language teaching process (ii) discuss the experiences, the challenges and issues with the teaching of English language (iii) converse how they overcome those challenges that they had in teaching the English language. Each semi-structured interview lasted for 15-25 minutes. The interviews were conducted in English though the native-tongue of the participants are either Sinugbuanong- Bisaya or Waray-Waray. All interviews were digitally recorded and transcribed verbatim at the semantic level to facilitate the analysis. The transcripts and analyses of the interviews were emailed back to the participants for member checking and edited by the researcher with their comments. Pseudonyms were assigned to each participant in all written or digital files to ensure confidentiality.

Data Analysis Procedure

Phenomenological research uses the analysis of significant statements, the generation of meaning units, and the development of what called an essence description. This study is a descriptive phenomenology which concerned with revealing the "essence" or "essential structure" of a phenomenon under investigation (Morrow, Rodriguez, & King, 2015). The method of analyzing the data adheres to the steps of Colaizzi's (1978) distinctive seven-step process to provides rigorous analysis, with each step staying close to the data. These steps are Familiarization, Identifying significant statements, Formulating meanings, Clustering themes, Developing an exhaustive description, Producing the fundamental structure, Seeking verification of the fundamental structure. The final result is a concise yet all-encompassing description of the phenomenon under study, validated by the participants of the study. The method relies on the rich experience of the respondents; these may come from face-to-face interviews, diaries, written outputs, blogs, or focused group discussions.

The first step of Colaizzi's data analysis the familiarization where the researcher reads through all the participant accounts several times to be familiarized with the data. Then he or she identifies significant statements in the accounts that are of direct relevance to the phenomenon under investigation. These significant statements are assigned with meanings keeping in mind that the researcher must "bracket" personal pre-suppositions and stick closely to the phenomenon as experienced. After identifying the meaning, the researcher clusters the identified meanings into themes that are common across all accounts. Again bracketing of pre-suppositions is crucial. Next is writing a full and comprehensive description of the phenomenon, incorporating all the themes produced. Then, the researcher condenses the thorough description down to a short, dense statement that captures just those aspects deemed to be vital to the structure of the phenomenon. The researcher returns the fundamental structure statement to all participants (or sometimes a subsample in larger studies) to ask whether it captures their experience. He or she may go back and modify earlier steps in the analysis in the light of this feedback ((Morrow, Rodriguez, & King, 2015).

Ethics Statement

Before the conduct of the interview, the researcher explained to the participants the nature of the study, what will be required of them during the conduct of the interview, and the approximate time requirement. They were also informed that the interview was recorded using the audio recorder of the researcher. Participants were guaranteed the confidentiality of their personal information such as names. Pseudo names were assigned to each of the participants. Their identity would not be divulged and all the data gathered handling, and storage process would protect their anonymity. It was clarified that the interview was voluntary, free of coercion, and autonomously exercised. The refusal to be interviewed would not affect the participants' status in the university.

Results and Discussion

The in-depth interview was conducted to explore the current situation in teaching and learning the English language at the tertiary level at Visayas State University. Two major questions were identified: 1.) What are the issues and concerns in teaching the English language do teachers encounter in the higher education level? and 2.) What coping mechanisms are employed by teachers in teaching the English language to the students at the tertiary level?

The challenges faced by the teachers at the tertiary level in VSU are connected to the classroom level, school level, and education-system level. Going through with thematic analysis, the researchers have identified these interrelated issues concerning English language teaching and learning and the coping mechanisms employed by teachers. During the focused group discussion, the participants of the research have shared their joys in teaching, that despite the problems that they are facing concerning their work, they feel satisfied when they see that the students gain learning from them. At the same time, they can see progress on their part. They can explore and strengthen their expertise and sharpen their capability in teaching and learn simultaneously. Satisfaction is one of the factors of the overall efficiency of work performed, is configured as a result of the relation between what individuals get from work (in terms of salary, status, appreciation, etc.) and their projected results. This construct can be defined as the events that give rise to a subjective feeling of relief, pleasure, which may be expressed or described by the individual who is experiencing it, but cannot be seen from the outside by another person (Mathis, 1997).

"My joy is to see my students learning and becoming achievers in their academic pursuits" (Respondent 6)

"when you love teaching there's just no limitations with your effort, with your strategies so you really do your best to make them learn so I think for me that makes me happy because it's my passion to teach" (Respondent 2)

"... I get to learn the new trends in teaching language and literature. And because I'm also studying, I also learned from my classmates and professors and I get to apply my learnings in the classroom." (Respondent 3)

"I can see the changes in my strategies, in my methods. Before when I was not yet studying, I tended to be very conventional and traditional in my approaches. But now for example, in teaching grammar, I

was too structural, but now I give way to communicative grammar language teaching.” (Respondent 5)

“It really gives joy to me when I learn that my student is at least master the skills in language especially in dealing with writing and speaking.” (Respondent 4)

1. What are the issues and concerns in teaching the English language do teachers encounter in the higher education level?

The Challenges Faced by Teachers in Teaching English Language (Classroom Level)

Teachers' problems in the classroom level revolve around students' lack of confidence in using the English language, students' lack of interest in learning the English language, students' weak foundation in the English language, and teacher teaching large classes. All of the respondents in the study have mentioned their concerns on the students' performance in learning the English language. Common answers tell about the attitude and motivation of the students towards English and the students' poor performance in class. This greatly reflects Krashen's Affective filter hypothesis that states negative feelings, anxiety, lack of motivation, or low self-esteem can prevent learners from successful acquisition of a second language.

Students' Lack of Confidence in Using the English Language

Based on the interview on the participants, one problem they encounter in class is students lacked a positive attitude towards learning English. *“...most of them are hesitant to learn the language because they think that they would sound funny. ...they would make mistakes and they're afraid that the instructor would give negative feedback”* (Respondent 3). According to the participants, students are timid when it comes to speaking the language. Copland, Garton, and Burns (2014) expressed that many children are shy in speaking a foreign language in front of their classmates because it can be face-threatening. Students' reactions like laughing, mocking, and teasing when someone mistakenly pronounces a word or committed error in his discourse to make a student hesitant to participate in an activity. Students' reluctance to speak English in front of their classmates can be exceedingly embarrassing. When students felt embarrassed, they withdraw themselves and not use the target language. The same issue emerged in the study conducted by Madalinska-Michalk & Bavli (2018). In their study, teachers pointed out students' low motivation in learning English, which became a stressor to the teachers. According to Broussard and Garrison, as stated by Abrar (2016), motivation is considered as “the attribute that moves us to do or not to do something” (p. 106). This term refers to the causes which underlie someone's behavior that is commonly seen from his/ her volition and willingness. In the classroom context, it deals with the students' willingness to participate in classroom activities. When the students have no willingness or feel reluctant to get involved in learning the language comfortably, it is an indication of a lack of motivation. Students are hesitant to use the English language, especially during recitation.

Students' Lack of Interest in Learning the English Language

Aside from hesitation to use the language, students' interests are seen as a problem. According to the

participants, students lack the attitude in learning, and most of the time are passive learners. Students inactively listen to classroom discussion. “... when I ask them questions they’re just look at me with having their attention so I thought that they’re listening but then their attention is focusing somewhere else.” (Respondent 1). This is backed up by the Respondent 4 “...they're not really interested. Some of them are not really interested in learning.” Students’ low concentration in the classroom causes challenges in grasping knowledge from the teacher. As described by the respondent, the class discussion is less lively when the student would just stare at her or nod and just agreed to everything she says.

English is enrolled as a minor course, some as an elective course, except for those who are English majors. Thus, most of the students do not take the subject seriously. Students do not have the internal motivation to learn English for other purposes other than getting a passing mark for the subject (Akbari, 2015). Students’ interest in a topic holds so much power. When a topic connects to what students like to do, engagement deepens as they willingly spend time thinking, dialoguing, and creating ideas in meaningful ways (McCarthy, 2014). Students’ interest is seen as problematic in the tertiary level. Participants mentioned that a lot of students are passive in English class. Students do not understand the purpose of learning English (Copland & Burns, 2014). Thus, teachers have the responsibility to motivate the students which can mean they expend a good deal of energy, both in planning a range of activities and in classroom teaching. The same idea was mentioned by one of the participants, that it is the task of the teacher to motivate the students to learn English: “I believe that it is the job of the teacher to motivate the students. When the teacher says the student is not motivated or do not have the right attitude, it’s the job of the teacher to engage the student.” (Respondent 6).

Students’ Weak Foundation Skills in English

A strong English foundation is necessary to learn and acquire a higher level of skills in English. It is easier for a native speaker to speak a grammatically correct sentence, however, a struggle for non-native speakers whose mother is another language. For such students, comprehending the grammar rules may seem to be a difficult task. Participants retaliated that students’ basic skill is weak that it is one of the issues that emerge in teaching and learning English, particularly in grammar and structure. One of the participants points out that she has to go back teaching the basics to the student. “... most of my students cannot identify the verb in the sentence also the subjects...and also the rules of capitalization” (Respondent 1). One of the respondents even compared the English skills of the tertiary students to that of the elementary level. “they’re not really very good. I mean their level is elementary (Respondent 3). Students’ weak foundation in English particularly in grammar and the macro skills are reflected in their English aptitude. When asked to submit write-ups such as essays, errors in writing are observable. The problem is also true in the area of speaking skills. This corresponds to Mukattash (1983) who found that most inaccuracies are in pronunciation, morphology, syntax, and spelling. “mostly my students have no strong foundation in grammar.... So that's one of my problems, especially when they when I require written papers or written requirements. When I read their work, I notice grammatical errors.” (Respondent 2). Another participant also agrees that her students need to build a good foundation in English as required to a college student especially to those who are majoring in English. “... most of them don't have a strong foundation of the language”. “I think that's very important than skill or knowledge, especially when students major in

English” (Respondent 5). Due to the weak foundation of the students which is observable in their outputs, students’ overall proficiency in the English language is affected. Participants agreed that their students’ proficiency is low. *“I have observed that the English proficiency level of the students right now is much low than previous students especially with I think listening, reading and also with speaking, the four macro skills, and their writing too because it seems like I am reading an elementary output.”* (Respondent 2), *“... They don't have the Expected competency. And they don't have these so-called prerequisite skills to learn the course”* (Respondent 3). Differences in student’s background knowledge can be due to a lot of factors. Some of them are trained in rural areas, some are taught in urban areas, some have access to various English learning materials, and attended private language institutions while others are limited to textbooks only. The differences in foundation skills in English are significantly affected by the socioeconomic factor (Akbari, 2015).

Teaching Large Classes

Participants particularly highlighted a large number of students per class as an issue in language teaching. A classroom is a learning area in the school wherein the lessons are given. One of the problems often encountered by English teachers is that “overcrowded classes and the effect of such condition can have on teaching and learning” (Emery, 2012). Tanner (2009) concluded the ideal class size in the primary level is 17 students or less. It needs to be implemented to achieve the goal of learning. Some of the participants however mentioned that they have handling over-crowded classes. Over-crowded class is denoted by the overcapacity of the classroom or too many students in a class. An overcrowded classroom may create a problem for teachers. Nurkamto (2003) included the size of the classroom as one of the challenges in teaching English. *“As of now yes (over-crowded classroom). I don't want my class size to be more than forty. Because it impedes interactive participation”* (Respondent 6); *“...one problem that I think should be addressed is class size. I think 25 students. That number is ideal”* (Respondent 5). This condition affects the teacher’s feelings and expectations. Teachers don’t want to handle the overcrowded class as teaching becomes ineffective and not all students can participate in class. As classes are crowded, the chance of accommodating all the students to practice English is limited to less. Though teachers can apply strategies like group work, having an activity with a large number of students per group is not fitting. Group work in an educational setting involves a few numbers of students working together on a particular task (Akbari, 2015).

The Challenges Faced by Teachers in Teaching English Language (School Level)

The rapid change in the increasing quality of education all over the world requires teachers in the local area to be abreast of these changes. Participants in this study articulated the challenges they experienced in teaching the English language. These issues- shortage of teacher training, low hours of contact time for students, insufficient resources, and uncondusive facilities are reflected as challenges in the school level.

Shortage of Teachers Training

Common comments on the concerns about teaching the English language in the higher education level are the

teachers' professional growth. Participants believed that there was a shortage of training experienced by them. They agreed that English teaching training is in dire need. Some participants reacted that it is difficult to join a seminar or conference since the university provides a limited slot to the faculties and that if someone is interested, (s)he has to pay for his own. Among the six participants, four agreed that they lack training and seminars about teaching the English language. *"I think I need more training"* (Respondent 2). Two of the participants shared that if they wanted to join a seminar or conference and the school administration failed to support the funding, they have to pay for all the expenses. *"I spend my money on Professional development, so I joined seminars and participate in training."* (Respondent 3). The school administration funded regular faculties to attend seminars but to a limited time only. *"...Not accessible because we have to pay. The university they're only allowed to go to a conference. Once a year so, I think that's not enough"* (Respondent 4). It is a policy in the university to give funding to faculties who wanted to attend a seminar or conference and training but they only fund those in the regular position and not the part-time or visiting instructors. Further, there are guidelines that the university follows before they allow a faculty to attend the desired training or seminar. *"When I was hired as a part-time instructor during those days in my first years of the teaching I spend my money in Professional development"* (Respondent 3). This issue of shortage of training is also true to other countries (Songbatumis, 2017).

The lack of training and seminars experienced by the four out of six respondents is similar to the concerns raised by the respondents in the study of Yusob (2018) wherein lecturers claimed that they lack experience, training, and seminars in teaching English which becomes a disadvantage for them. Teachers whose teaching training is not enough might affect the teaching methods effectively (Littlewood, 2007). Since teachers play vital roles in being students' second parents or guardians and students' role models, more is expected among teachers. While students come to school to study and so that their learning continues over time, teachers must also not stop learning themselves. Thus, teachers are required to attend training and seminars that can increase their academic faculty, enhance their teaching skills, and develop their teaching personality (Ibao, 2017).

Low Hours of Contact Time for Students

One participant mentioned that the time provided was not enough to apply teaching ideas in the classroom. The time provided to teach English was only 60 minutes in every meeting, whereas, the participant expects that the ideal time to teach English is 90 minutes for each meeting. The teaching process was limited to only one hour, or three hours a week. It impacts learning since teachers and learners need to squeeze the time given. Some topics were also not covered during the school duration, so students are expected to do self-study especially those topics which were not discussed in the classroom. *"... this subject is not good for 1 sem, it should be divided into two. So the first part should be taught in the first semester, and the other part could be taught in the second sem."* (Respondent 1). This issue is the same as experience in schools in Turkey and Poland. The amount of English classes the students have each week is not enough, teachers felt that increasing the contact hours in teaching English provides the opportunity for individualized teaching and reduced pressure to the student. Both parties benefit if a change is made (Madalinska-Michalk & Bavli, 2018).

Insufficient Resources

Resources mean things which are used by someone or organization to function effectively (Abrar, 2016). In teaching, these are materials that teachers use to deliver instruction. Teaching materials help students learn and increase their success in learning. The teaching materials are tailored to the goals and content, to the students learning preferences, and the teacher. Teaching materials come in many shapes and sizes, but they all have in common the ability to support student learning resources is the key to succeed in doing things (Ministry of Education, Guyana, 2019). Without sufficient materials, participants feel discomfort in teaching. “There’s no availability of resources so I need to search it in google so as an English teacher it’s very hard for me to teach English especially that if there’s no availability of materials” (Respondent 1); “... I found looking for materials a challenging job” (Respondent 2) “... lack resources and references materials that could help them to teach better” (Respondent 4)

Participants, based on the excerpts, perceive looking for teaching resources an additional task. They primarily considered the equipment such as the LED projector and internet as the main teaching resources that they need. “...in one LED projector there would be eight teachers assigned to use it so most of the time I could not get a hold of the projector so even when I am so prepared with all my materials for examples PowerPoint, movie, clips, but I would not be able to utilized them for my classes” (Respondent 2); “We are only limited to power point presentation and internet cannot reach the classrooms” (Respondent 3); “...one limitation that the institution has to address that internet should be provided in the classrooms so that students can use them again when they do their requirements.” (Respondent 5) “...we could not access sites that can even enhances more our lessons” (Respondent 1).

Unconducive Learning Facilities

The quality of a facility is one of an important predictor of teacher retention and student learning. The physical and emotional health of students and teachers is affected by the quality of the physical location, which makes establishing safe, healthy buildings essential. The quality of learning space in the university is an issue as stated by the participants. “It’s an issue, especially in the classroom. The classroom here in the university is not very good” (Respondent 4). Concerning teachers, school facilities affect teacher recruitment, retention, commitment, and effort in teaching. Concerning students, school facilities affect health, behavior, engagement, learning, and growth in achievement. Thus, facility quality is an important predictor of teacher retention and student learning (Interioravenue, 2017). This finding is similar to the finding of O’Connor and Geiger (2009) mentioned by Abrar in 2016. In their paper, they mentioned resource was one of the problems faced by primary school teachers in their research sites in which most of the teachers – around 92, 5% - expressed for the need for specific language teaching resources for teaching the learner.

The Challenges Faced by Teachers in Teaching the English Language (the System Level)

The system-level challenges identified is the wrong interpretation of the policy implemented in the primary and

secondary level. One of the participants mentioned the “no child left behind” policy which was interpreted incorrectly. *“this policy, no children left must be left. So all of them must graduate to the next level or just go to the next level. Even without mastery, even without emphasizing and mastery and ensuring that they already are equipped to go or they're already equipped with the necessary skills that they need to go on to the next level. And for me, that is the root cause of the issue”* (Respondent 5). No child left behind particularly aims to improve access and quality of basic education for the indigenous population in the Philippines. A wrong interpretation of it is allowing a pupil to pass a level even without passing the metrics.

2. What coping mechanisms are employed by teachers in teaching the English language to the students at the tertiary level?

The solutions implemented and the coping mechanisms employed by teachers to lessen the difficulties they are experiencing in teaching the English language includes being resourceful and flexible in developing instructional materials, providing alternative activities to enliven and engage passive learners, balancing the use of both technology and library books.

Students' Lack of Confidence and Interest in Learning and Using the English Language

Mastery of the subject taught is also highlighted to prevent further issues about teaching the subject. When teachers master the topic, there is a smooth flow of the teaching-learning process. They can ensure that they are teaching the right ideas, theory, and other matters to the student. With this, teachers can match the learning activities to be used if the lesson is already mastered by the teacher. The connection between learning activities and subject matter cannot be neglected. One of the participants said that as a teacher, she has to spend time studying the lesson *“You spend more time. And. Spend more time with. Your lessons.”* (Respondent 4). Teachers do change their teaching styles to encourage passive learners and participate in class discussions. One of the participants mentioned that she shifted to the communicative approach which requires the student to speak. *“I tended to be very conventional and traditional in my approaches. But now for example, in teaching grammar, I was too structural, but now I give way to communicative grammar language teaching”* (Respondent 5). They also provide activities wherein students can relate and allows them to share thoughts. *I let them have lots of activities for them to participate and to engage in my lesson so in that way they're not just only gaining information but also they are engaging, they are developing their skills in terms of their communication skills.* (Respondent 1); *“so I developed the activities that these could get their attention so especially that they are of different types of learners”* (Respondent 3).

Students' Weak Foundation Skills in English

For teachers to connect to the student s(he) has to set the standard which is achievable to the student. Because of students' weak foundation in English, their performance in college is affected, thus the participants need to alter the teaching method and make it appropriate to the level of the learners. One of the participants even started in teaching the basic to help the student. *“what I did as an English teacher was I taught them the basic*

one” (Respondent 1); *“the tendency is that you need to fill in and make them imitate”* (Respondent 3).

Teaching Large Classes

For the large class size, teachers do not have a hold on the number of students to be enrolled in one class, but participants have mentioned that they do change classroom activities and teaching methods and fit it also to the number of students in the classroom. One participant mentioned that to accommodate a large number of students, she gives role play, group activities, peer work. The teaching and learning process must require a comfortable and enjoyable atmosphere, otherwise, teachers might be in failure to fulfill students’ needs and achieve learning goals.

Shortage of Teachers Training

There is a policy being followed by school administration before allowing a teacher to attend a seminar or training. Aside from this policy the budget allocated for the professional development of faculties is also limited thus it becomes difficult for all the faculties to attend some training. One of the solutions shared by one of the participants is paying her expenses in the seminar. Participants mentioned that if there are some training and seminars held with the university, they are allowed to attend for free. *“It’s good because I already experienced attended training in Purposive Comm so it was good training for it will help to improve the skills in teaching purposive communication”* (Respondent 1); *“when I was promoted as a regular faculty there are chances given by the university (to attend a seminar)”* (Respondent 3).

Low Hours of Contact Time for Students

The number of contact hours a student spends for one semester to complete the course is predetermined, teachers do not have hold of it. Changing the teaching approaches by not limiting activities that are usually done inside the classroom and increasing their time exposure to the English language can benefit both students and teachers.

Insufficient Resources

Concerning difficulties encountered due to the lack of resources, participants opt to use the traditional method which includes the use of manila paper or flip chart and various teaching strategies. It is expected for teachers to be flexible in the teaching methods and strategies and tailor-fit these to learners' needs. According to Fatiloro (2015), teachers should practice a variety of teaching approaches to handling English teaching problems. Teachers used activities that appeal to the students and developed instructional materials in place of PowerPoint Presentations. In the absence of the technology such as projector, the participants opt to use alternatives. *“so I developed the activities that these could get their attention so especially that they are of different types of learners. And also with the material, well. Of course, I make use of the traditional method. For example, the DLP is unavailable so I will use the blackboard or flip chart or sometimes. Manila paper. And print pictures or*

printed materials.” (Respondent 1). This statement is supported by another participant who states that “*when you already prepared for a PowerPoint presentation but you don’t have the projector to go with it or to play it, then you have to have prepared tangible visual aids like writing it on manila paper, writing it on the board through chalk.*” (Respondent 2). English teaching will not achieve its objectives if the teaching tools are not backed up. Hence, efforts should be made so teachers acquired the necessary learning resources such as books and teaching (Pande, 2013).

Summary

The research study explores the range of issues faced by tertiary teachers in teaching the English language. By interviewing six college teachers, the researcher found out that part of the issues that teachers face come from the students, the learning environment, and the lack of training of the teachers. However, even with these challenges, the participants agreed that teaching is a satisfying profession not because of the salary but because of the changes they see on the students’ part. Students’ attitude in learning the language, their early foundation in English, and proficiency in using the language are the emerging difficulties in the students’ aspect while lack of learning materials and resources, the physical environment, and support from the school administration for teachers’ attendance in training and seminars are other issues raised by the teachers. There are also issues that respondents identified in the curriculum such as the promotion of the student to the next level in the primary and secondary years, and the amount of time a particular subject is taught at the tertiary level. To face these issues, this study also found the strategies implemented by the participants of the research. Teachers still utilize traditional materials such as the use of manila papers, print outs, and board and chalk since technology is limited and not everyone can use it at the same time. Further, teachers still require students to go to the library and not fully depend on the internet as a source of information. Each of them had his/her strategies in overcoming their teaching challenges. Despite various issues, respondents also identified joys in teaching particularly gaining satisfaction in the teaching profession.

Conclusions

This research highlighted the issues faced by the teachers in English language teaching. It also shows the joys that teachers experience in the field of teaching and the coping mechanisms they employed to lessen the difficulties they faced in the field.

1. The teacher participants claimed that they felt satisfied, and this satisfaction they gained allows them to stay in the teaching profession despite the challenges they faced.
2. The teacher participants experienced pains, difficulty, and problems when teaching the English language such as students’ attitudes and motivation, students’ foundation in English, inadequate time, resources and materials, and lack of teacher’s professional growth.
3. The teacher participants managed to handle these difficulties they are experiencing in teaching the English language through being resourceful and flexible in developing instructional materials, providing alternative activities to enliven and engage passive learners, and balancing the use of both technology and library books.

Recommendations

This section presents the recommendations on the themes that emerged from the responses during the conduct of the interview.

1. *Personal satisfaction*: Teachers should not limit themselves to extending their efforts for the benefit of the students. They should find passion in teaching the students so that a greater transformation will then be manifested from the students.
2. *Students' attitude and motivation*: Teachers should establish a positive environment toward leaning the language. They must also integrate the value of respect within the classroom so that they will be able to live up with that virtue and create a healthy learning environment.
3. *Students' foundation in English*: Teachers should understand that students come from diverse backgrounds. It is then unhealthy to overestimate the capacity of the students. Therefore, teachers then should sense the needs of the learners to fill in the gap.
4. *Inadequate time, resources and materials*: School managers should look into the problems of resources, materials, and the allotted time for instruction. They should collaborate with English teachers because ESL classes have different needs from other course subjects
5. *Teachers' professional growth*: Teachers should not stop learning. If training is not provided by the institution there should always be an initiative from the individual concerned. However, school managers should treat this as a major concern. Funds should be allocated for training to empower the teachers to ensure quality instruction.

References

- Akbari, Z. (2015). Current challenges in teaching/ learning English for EFL learners: The case of junior high school and high school. *Procedia Social and Behavioral Sciences*.
- Arriola, J. L. (2017). Issues on English as Second language: The Philippine Experience. ResearchGate.
- Bayraktaroglu, S. (2012). Why don't we become successful in foreign language education? What should be the trend in foreign language education in Turkey? 1. Yabancı Dil Egitimi Çalıştayı Bildirileri, 12-13 November 2012. Hacettepe Üniversitesi, Ankara.
- Copland, F., Garton, S., & Burns, A. (2014). Challenges in teaching English to young learners: Global perspectives and local realities. *TESOL Quarterly* Vol. 48(4), 758-762.
- Garcia, A. (2007, November). Good English, Better Opportunities. *The Manila Bulletin*.
- Emery, H. (2012). A global study of primary English teachers' qualifications, training, and career development. *ELT Research Papers*, 1-32.
- Johnstone, R. (2009). An early start: What are the key conditions for generalized success? In J. Enever, J. Moon, & U. Raman (Eds.), *Young learner English language policy and implementation: International perspectives* (pp. 31–41). Reading, England: Garnet Education.
- Kashikar, Y. S. (2016). Problems and Solutions in Teaching as a Second Language at College Level. *Pune Research Discovery*, Vol.1, Issue 2.
- Marcelo, P. (2010). English Proficiency is Key to Landing a Job. Retrieved from Planet Philippines:

- <http://planetphilippines.com/current-affairs/english-proficiency-is-key-to-landing-a-job/>
- Kocaman, A. (1983). Foreign language teaching and problems in secondary education institutions. TED Bilimsel Toplantısı. Ankara: Safak Matbaası.
- Koru, S., & Akesson, J. (2011). Turkey's English deficit (Policy Note). Economic policy research foundation of Turkey. Retrieved from http://www.tepav.org.tr/upload/files/1324458212-1.Turkey_s_English_Deficit.pdf, on 20.03.2015.
- Littlewood, W. (2007). *Communicative and taskbased language teaching in East Asian classrooms*.
- Madalinska-Michalk, J., & Bavli, B. (2018). Challenges in Teaching English as foreign language at schools in Poland and Turkey. *European Journal of Teacher Education*.
- Mukattash, L. (1983). The problem of difficulty in foreign language learning. Amman, Jordan: University of Jordan.
- Nurkamto, J. (2003). Problema pengajaran bahasa Inggris di Indonesia. *Jurnal Ilmiah Masyarakat Linguistik Indonesia* 21(2), 288-307.
- Oktaç, A. (2015). Foreign language teaching: A problem in Turkish education. *Procedia-Social and Behavioral Sciences*, 174, 584-593. <https://doi.org/10.1016/j.sbspro.2015.01.587>
- Pande, V. B. (2013). Problems and remedies in teaching English as a second language. *Confluence*, 416-421
- Salazar, M. (2007). The Decline of English Proficiency. Retrieved from *The Manila Bulletin*.
- Shaaban, K. (2016). Challenges of Teaching English In Tertiary Education in the Arab World.
- Songbatumis, A. M. (2017). Challenges in Teaching English Faced by English Teachers at MTsN Taliwang, Indonesia. *Journal of Foreign Language Teaching and Learning* , 54-67.
- Tilfarlioglu, F. Y., & Ozturk, A. R. (2007). An analysis of ELT teachers' perceptions of some problems concerning the implementation of English language teaching curricula in elementary schools. *Journal of Language and Linguistic Studies*, 3(1), 202-217.
- Tosun, C. (2012). Is it the reason for failure in teaching and learning foreign languages in our country methodology? What should be the trend in foreign language education in Turkey. *Yabancı Dil Egitimi Çalıştayı Bildirileri*, 12-13 Kasım 2012.
- Wolff, D. (2003). Integrating language and content in the language classroom: Are transfer of knowledge and of language ensured? *ASp*, 41(42), 35-46. <https://doi.org/10.4000/asp.1154>
- Yusob, K. F. (2018). Challenges of Teaching Grammar at Tertiary Level: Learning from English Lecturers' Insight. *ReserachGate*.

Author Information

Precious Domingo

 <https://orcid.org/0000-0003-3803-9448>

Visayas State University

Philippines

Contact e-mail: precious.domingo@vsu.edu.ph

Age, Gender and Verbal Ability as Predictors of Students' Achievement in Biology

Saheed Ayodeji Adejimi, Wenceslas Nzabalarwa, William Aino Shivoga

Abstract

This study examines the relationship between age, gender, verbal ability and achievement in biology among senior secondary school students within Ibadan metropolis, Oyo State, Nigeria. The study adopted an ex-post factor research design. The sample for the study consisted of 305 senior secondary school II students selected randomly from two local governments within the metropolis. Two research instruments were used to collect data from respondents selected for the study. Independent t-test and one-way ANOVA were used to analyze the data collected for the study. Results from the study reveal a significant difference in students' achievement based on age, gender and verbal ability. The call for biology stakeholders and curriculum planners to ensure that the medium of instruction is given adequate and necessary attention was highlighted. The need for authors of biology textbooks to reduce gender bias and ways to sustain students' interests irrespective of gender, age or level were also highlighted.

Keywords: Age, Biology, Gender stereotype, Students' achievement, Verbal ability

Introduction

Biology can be defined as a natural science subject which study all living things of contents from in the biosphere and earth surface (Okwo & Tartiyus, 2004). It is one of the core science subjects offered at the senior secondary school level in the Nigerian educational system. It is also a required subject for all science candidates at the Secondary School Certificate Examination (SSCE) because of its link to man's successful living (Akindele, 2009). Its relevance to the study of medicine, pharmacy, biotechnology, nanotechnology, microbiology, genetic engineering, nursing, and other related courses at a higher level of education is obvious. It is also the preferred subject by non-science students over the other subjects, chemistry and physics to fulfil the requirement of offering at least one science subject and this is due to the perceived nature of it being a 'simple' subject.

The importance of biology to the individual and the community cannot be overemphasized. According to Ezeazor (2003), studying biology brings one closer to knowledge of self as well as knowledge of the environment and surrounding. According to Ugwu and Eze (2005), the study of biology affords individuals the

knowledge to understand themselves, their body parts and their functions. It develops in an individual attributes such as scientific, social and problem-solving skills. The study of biology therefore transforms one mind into critically questioning superstitions. Biology is undoubtedly related to social problems, and its knowledge is therefore critical in proffering solution to them.

Despite the perceived 'simple' nature, importance and role of biology in the life of an individual and the community at large, students' poor achievement in the subject remains a major concern to all especially experts in the field of biology education. Students' performance in biology at internal and external examinations has been reported to be consistently unsatisfactory, Olatoye (2004) cited in Sanni and Emeke (2017). Comments of the chief examiner of the West African Examinations Council (WAEC) corroborated this assertion, (chief examiner reports, 2008, 2012, 2015 & 2018). Many factors have been attributed to students' poor achievement in biology. These factors include age (Okoli, 2017; Momanyi, Too & Simiyu, 2015), gender (Nnenna & Adukwu, 2018) and verbal ability (Olatoye & Aderogba, 2011).

The effects of demographic variables on student academic achievement have been conducted in several studies. Such demographic variables include age, gender, parent education level, parent socio-economic status, parent occupation among others. Couple with these demographic variables, verbal ability is another factor that has been studied for its influences on students' academic performance. This study specifically looked at age, gender and verbal ability as it affects students' achievement in biology.

In the opinion of Abubakar and Oguguo (2011), age is a good indicator of scholastic success. According to them, the age of children on admission plays an important role in their academic performance. In addition, Ebenuwa-Okoh (2016) further reports age as an important variable affecting students' achievement. He stressed further that the development of learners' thinking abilities and their levels of maturity affect participation in intellectual activities. As an individual advanced in age, the cognitive domain functioning develops simultaneously for the mastery of manipulative skills. The development of these skills enhances the total human functioning that includes both academic activities and achievement (Ebenuwa-Okoh, 2011).

Results of previous studies on the effect of age on students' academic achievement are inconclusive. The result of the study by White (1982) revealed that students achievement level decline as they become aged. In the study by Grissom (2004) he averred, that over time the rate at which the academic achievement decline as students aged becomes constant. Abubakar and Oguguo (2011) and Rabgay (2015) reported a weak, but positive correlation between students' age and their academic achievement, which indicates that age does not determine students' academic achievement. Also, Aremu and Tella (2009) in their study reported an insignificant correlation between students' age and mathematics achievement. Jabor, Machtmes, Kungu, Buntat and Nordin, (2011) Momanyi, et al (2015) and Okoli (2017) reported a significant effect of age on students' academic achievement in favour of students in the lower age groups.

Gender is another factor that could determine the academic achievement of students in any school subjects. According to Ebenuwa-Okoh (2016), it is a factor that resides within a learner. Abubakar and Uboh, (2010),

opined that gender is the characteristics that differentiate organism based on biological role of reproduction. Yang (2010) defined gender as a socially construed characteristics and opportunities related to being male and female, as well as the relationships between a man and woman; a girl and a boy, as well as those between women and those between men. All these constructs (characteristics, opportunities and relations) are acquired through the socialisation process. Okeke (2008) refers to gender as a socially culturally constructed characteristics and roles which are ascribed to males and females in any society.

Gender equality is a core component of the millennium development goals (MDGs). Gender inequality exist both in the educational and research sectors of science and it is of great concern to stakeholders, (Nwakwo & Madu, 2014). Okeke (2007) stated that the consequences of gender inequality transverses all sectors, but is more profound within the field of science and technology. The opportunity cost of education, early marriage among girls, lack of female role models, poor self-concept, inherent sex differences, teaching methods and gender stereotyping among students and teachers are some of the identified probable reasons responsible for gender disparity by Offor (2007). Hansman, Tyson and Zahidi (2009) affirmed that no country in the world is yet to bridge the gap to attained gender equality in different critical sectors of the economic including the science and technology sector.

Several pieces of research have been conducted on the influences of gender on students' academic achievement, with varied outcomes. This should, however, be expected as studies vary in contexts. These contexts include the methodology, disciplines, subjects, location, and time of studies, research tasks, and classroom settings. Farooq, Chaudhry, Shafiq and Berhanu (2011), Jabor, Machtmes, Kungu, Buntat and Nordin, (2011) and Ochonogor (2011), all reported that the female performed academically better than the male students. Ezeudu and Obi (2013), Nnenna and Adukwu (2018) and Odagboyi (2015) conversely reported that the male achieved academically better than the female students. Agbejoye, Aleburu, Olugbaike and Ogunjimi (2015), Aniodoh and Egbo (2013), Ebenuwa-Okoh (2016), Olasehinde and Olatoye (2014), all reported that gender has no influence on students' academic achievement.

The inconsistency in these results prompted Ochonogor in 2006 to conclude that, 'science in general and biology or life science, in particular, ought to be all encompassing and not gender-biased in nature. This implies that irrespective of natural gender disparity, learners of all age in any given science class are expected to be taught in a common learning environment, using non-stereotyped pedagogical approaches, contents and activities. With such foundation for all recipients of science knowledge contents, their performances can, therefore, be evaluated and analyzed on a common platform'.

Verbal ability is an important part of human existence since no human is an island unto him/herself. He or she needs to communicate often with a fellow human. It is the medium through which feelings and thoughts are communicated. It is also essential for human learning. Bloom (1974) averred that verbal ability is a necessity if a child is to learn in school. Ayodele (1987) cited by Iyamu (2005) submitted that pupils' deficiency in diction and good command of language is a precursor to educational failure in that this deficiency leads to a severe learning difficulties, which increases and continue through school life.

Andrew, Cobb and Giampietro (2005) define verbal ability as a person's ability at putting thoughts into words, both oral and written. It is an aspect of the conventional and traditional intelligence test constructs that measure verbal ability, quantitative reasoning, and logical thinking. To Mozuraitis, Chambers and Daneman (2016), verbal ability is the teachers' judgments about a child's reading skill. The characteristics of verbal ability according to Andrew et al (2005), entails not only the possession of a strong working vocabulary, but also possessing the appropriate diction to convey information to a selected audience, the ability to organize words coherently and being eloquent. Adegbile and Alabi (2007), listed elements of verbal ability test to include: word power, sentences arrangement, words arrangement, and substitution of elements and logical selections of appropriate words.

Adegbile and Alabi (2007) stated that verbal ability may show a significant level of relationship with students' grades. Gustin and Corazza (1994) submitted that verbal ability is associated to better achievement in science than any other discipline. Griffin, Wiley, Britt and Salas (2012), reported that verbal ability can be regarded as the most reliable factor in predicting learning outcomes in a multi-faceted inquiry task for seventh-grade students. Olatoye and Aderogba (2011) reported a significant relationship between students' verbal ability and performance in general aptitude test. Tzu-Ling Wang (2008) in her study also reported a strong significant relationship between verbal ability and students' science achievement. Smith and Sanders (1981) also reported a significant relationship between students' verbal ability and achievement. All these studies concluded that the higher the students' verbal ability, the better their achievement irrespective of the subjects.

Problem Statement

Students' achievement has been understood to depend on many factors. Biology, one of the branches of science is believed to be the 'simplest' subject by most non-science students. Despite its perceived 'simple' nature, students' achievement in this subject is a cause of concern for biology stakeholders. Many studies have been conducted to determine the factors that contribute to students' poor achievement in biology. Most of the studies focused on the effects of students' demographic factors (age and gender) on their achievement, but with little focus on the effects of students' verbal ability on their achievement. The study, therefore, aims to determine the effects of students' age, gender and verbal ability on their learning outcomes in biology within Ibadan metropolis, Oyo State Nigeria.

The study set out to achieve the following objectives

1. The effect of age on students' achievement in biology
2. The effect of gender on students' achievement in biology
3. The effect of verbal ability on students' achievement in biology

The following hypotheses were tested at 0.05 level of significance

1. There is no significant difference in students' achievement in biology based on their age
2. There is no significant difference in students' achievement in biology based on their gender
3. There is no significant difference in students' achievement in biology based on their verbal ability

Methodology

Research Design

The study adopted the ex-post facto or causal-comparative research design. Inference was made on the relationship between the independent and dependent variables, without a direct manipulation of the variables (Kothari, 2004). This means the researchers studied in retrospect the likely effect of the independent variables on the dependent variables. The variables of interest in this present research were therefore not subjected to any manipulation. The participants in this study were 305 senior secondary two (SS. 2) students selected by simple random sampling techniques drawn from six secondary schools within Ibadan metropolis, Oyo state, Nigeria. Their ages ranged from between less than 15 to 18 years and above with a mean of 16.3 years and a standard deviation of 8.6. Of the 305 students, 124 were males and 181 were females.

Instruments

The instruments for the study are the Biology Achievement Test (BAT) and the Students' Verbal Ability Test (SVAT). The BAT was researchers constructed question designed to tests the students' cognitive ability in specific topics (ecological management and nutrient cycling in nature) of the senior school two biology syllabus. It consisted of 40 objective questions with options ranging from A to D. each correct response was rewarded one mark. The reliability coefficient of 0.738 was obtained using Kuder Richardson (KR20), to establish the internal consistency of the items. The SVAT was adapted from the Australia Council for Educational Research (ACER). The verbal ability test assessed students' ability to spell words correctly, use correct grammar, understand word meanings, understand words relationship and interpret detailed written information. The reliability coefficient of 0.776 was obtained using Kuder Richardson (KR20) to establish the internal consistency of the retained test items. The demographic data were gleaned from the section of the biology achievement test and the students' verbal ability test that asked for the students' age and gender

Procedure and Data Analysis

The two instruments were group administered by the researchers to the subjects in the participating schools with the help of a research assistant and some class teachers. The students were instructed to attempt all the items on the instruments as it was not for grading purpose, but for a diagnostic purpose to assists policy makers in the formulation of policies. Scoring was done based on the scoring guides prepare by the researchers. Independent t-test and the one-way ANOVA were used for analyzing the collected data. The criterion measure or dependent variable was a biology achievement test while the predictor or independent variables were age, gender and verbal ability.

Results

***Ho1:** There is no significant difference in the achievement of male and female students in biology.*

Table 1 reveals that there is a significant difference in the achievement of male and female students in biology ($t = 3.87$; $df = 303$; $p < 0.05$). Table 1 shows that male students ($\bar{X} = 31.15$) had higher achievement in biology than their female counterparts ($\bar{X} = 28.81$). This difference in their mean scores is statistically significant. Therefore, hypothesis 1 was rejected. This means that gender has a significant effect on students' achievement in biology in favor of male students.

Table 1. Difference in Achievement of Students' based on Gender

Variables	N	Mean	Std.d	Df	t	P-value	Remark
Male	124	31.15	5.43	303	3.871	0.000*	Sig.
Female	181	28.81	4.98				

* denotes significant at $p < 0.05$

Ho2: *There is no significant difference in the achievement of low and high verbal ability students in biology.*

Table 2 indicates a significant difference in the achievement of low and high verbal ability students in biology ($t = -24.60$; $df = 303$; $p < 0.05$). Table 2 reveals that high verbal ability students ($\bar{X} = 33.37$) had higher achievement in biology than their low verbal ability counterparts ($\bar{X} = 24.76$). This difference in their mean scores is significant. Hence, hypothesis 2 was rejected. This implies that verbal ability has a significant effect on students' achievement in biology in favor of high verbal ability students.

Table 2. Difference in Achievement of Students based on Verbal Ability

Variables	N	Mean	Std.d	Df	t	P-value	Remark
Low	130	24.76	3.63	303	-24.599	0.000*	Sig.
High	175	33.37	2.55				

* denotes significant at $p < 0.05$

Ho3: *There is no significant difference in the achievement of students in biology based on their age.*

Table 3 shows that there is a significant difference in the achievement of students in biology by their age ($F_{(3, 302)} = 4.66$; $p < 0.05$). Hence hypothesis 3 was rejected. This implies that the age of the students had a significant effect on their achievement in biology.

Table 3. ANOVA Showing Difference in Students' Achievement by Age

Model	Sum of Squares	Df	Mean Square	F	Significant
Between Groups	254.279	2	127.139	4.658	0.010*
Within Groups	8243.249	302	27.296		
Total	8497.528	304			

To explore the magnitude and determine which of the age group causes this specific difference between pairs

of groups in students' achievement in biology, the Bonferroni post-hoc test is carried out across the age groups, while the result is presented in Table 4.

Table 4. Bonferroni Post-hoc Analysis of Achievement by Age

Age	N	Mean	<15	15-18	>18
<15	71	30.01			*
15-18	228	29.85			*
>18	6	23.33	*	*	

Table 4 indicates that the students with age less than 15 years have the highest achievement mean score in biology (30.01) which is not significantly different from those within the age range 15-18 years (29.85) but is significantly different from those with age higher than 18 years (23.33). Table 4 indicates that it is significantly different in the achievement mean scores of students within the age range of 15-18 and those with age higher than 18 years. This indicates that the significant difference revealed by the ANOVA analysis is due to the difference between the students with age less than 15 years and those higher than 18 years, and also between 15-18 years and those with age higher than 18 years.

Discussion

The result from the study shows that there is a significant difference in students' achievement in biology based on their age, gender and verbal ability. The result from table 1 shows that there was a significant difference in students' achievement in biology based on gender. The mean achievement score for the male students of 31.15 is higher than the mean achievement score of the female students of 28.81. This mean difference is statistically significant ($t = 3.87$; $df = 303$; $p < 0.05$). Hypothesis 1 states that there is no significant difference in the students' achievement in biology based on gender was therefore rejected. There was a significant difference in students' achievement in biology based on gender in favour of male students. This result is in agreement with the study of Iroegbu and Famakinwa (2015), and Nnenna and Adukwu (2018)), but contrary to the result of Arslan, Canli and Sabo (2012), Veloo, Perumal and Vikneswary (2013) who both reported that female achieve better compare to their male counterpart and Aniodoh and Egbo (2013), Awolaju (2016), Michelli (2013) and Ibrahim, Sabitu and Magaji (2016) whom all reported no significant difference in the achievement of male and female students.

The result of hypothesis 2, presented in Table 2 indicates a significant difference in the achievement in the biology of low and high verbal ability students. The mean score of low verbal ability students is 24.76, while the mean score of high verbal ability students is 33.37. The mean difference is statistically significant ($t = -24.60$; $df = 303$; $p < 0.05$). It, therefore, leads to the rejection of the hypothesis which states that there is no significant difference in students' achievement in biology based on verbal ability. This result shows that students' verbal ability is a determining factor of high achievement in biology. Unlike the other branches of pure science which are symbolic and mathematical in nature, biology is an expressive subject which requires individuals to express their thoughts about a phenomenon. This result agrees with the result obtained by Adeyemi (2017), Anazia (2019), Corengia, Pita, Mesurado and Centeno (2013) Iyamu (2005). Adegbile and Alabi (2007) concluded that

students' grade is greatly related to their verbal ability. It is hereby concluded, that the higher the verbal ability of students, the higher their achievement in whatever disciplines.

The result of hypothesis 3, presented in Table 3 shows a significant difference in the achievement in the biology of students of different age grades. Hypothesis 3 which states that there will be no significant difference in the achievement of students in biology was therefore rejected. Further analysis using the Bonferroni Post-hoc test in table 4 gives the source and the magnitude of the differences in biology achievement based on students age. The result indicates that the younger the age of the students, the better their achievement. This result agreed with the study of Jabor, Machtmes, Kungu, Buntat and Nordin, (2011) and Varughese (2010), but against the study of Lake and Boyd (2015) and Milun, Mardešić and Kovač (2016), who reported high achievement in favour of the older students. Aremu and Tella (2009) reported no significant relationship between students' age and students' achievement in mathematics.

Conclusion

The study investigated how age, gender and verbal ability predicts students' achievement in biology. The result from the study shows that each of the study variable age, gender and verbal ability all have effects on students' achievement in biology. The following recommendations are hereby suggested:

1. All students should be treated equally irrespective of their age and gender
2. Teachers and textbooks author should avoid gender bias and be gender inclusive in the classroom
3. The medium of instruction used in the classrooms should be geared towards easy assimilation by the students
4. Authors should be careful of the dictions used to convey their messages in the course of writing textbooks.

References

- Abubakar, R.B and Oguguo, D.O (2011). *Age and Gender as Predictors of Academic Achievement of College Mathematics and Science Students. Proceedings of the 2011 International Conference on Teaching, Learning and Change*. International Association for Teaching and Learning (IATEL).
- Abubakar, R. B. and Uboh, V. (2010). Breaking the Gender Barrier in Enrolment and Academic Achievement of Science and Mathematics Students. *Akoka Journal of Pure and Applied Science Education*, 10(1), 203-213
- Adegbile, J.A and Alabi, O.F (2007). Effects of Verbal Ability on Second Language Writers' Achievement in Essay Writing In English Language. *International Journal of African & African American Studies*, 6 (1), 61-67.
- Adeyemi, B.A. (2017). Students' Self-Concept, Knowledge of Verbal Reasoning Skill and Learning Readiness as Correlate of Achievement in Civic in Senior Secondary Schools in Osun State, Nigeria. *Psychology Research*, 7(1), 50-56. <https://doi.org/10.17265/2159-5542/2017.01.005>.
- Agbejoye, S.J, Aleburu, J.O, Olugbaike, K.J and Ogunjimi, A.D (2015). *Effect of students' Gender, School*

- Environment and Teachers on the Students' Learning Outcomes in Basic Technology in Secondary Schools in Lagos State in Nigeria*. International Conference on Contemporary Issues in Education 17 - 19 May 2015 / Dubai - United Arab Emirates.
- Akindele, I. (2009): Increasing Teacher Capacity on the use of Dissection and experimentation Techniques for Effective Conduct of Biology Practical for Senior School Certificate Examination. *STAN, Biology Panel series*, Nwagbo, C. R.: Nsewi, U. M., Ajewole A.G. (Eds) *Nsukka Bel's Books*, 79-87.
- Anazia, I.U (2019). Quantitative and Verbal Attitude as Predictors of Senior Secondary Schools Students' Performance in Economics. *IAFOR Journal of Education*, 7(1), 7-18.
- Andrew, M. D., Cobb, C. D., & Giampietro, P. J. (2005). Verbal Ability and Teacher effectiveness. *Journal of Teacher Education*, 56(4), 343–354.
- Aniodoh, H.C.O and Egbo, J.J (2013). Effect of Gender on Students' Achievement in Chemistry Using Inquiry Role Instructional Model. *Journal of Educational and Social Research MCSER Publishing, Rome-Italy*, 3(6), 17-22.
- Aremu, A and Tella, A. (2009). The Relationship between Gender, Age, Mental Ability, Anxiety, Mathematics Self-Efficacy and Achievement in Mathematics. *Cypriot Journal of Educational Sciences* 4 (2009) 113-124.
- Arslan, H, Canli, L and Sabo, H.M (2012). A Research of the Effect of Attitude, Achievement and Gender on Mathematics Education. *Acta Didactica Napocensia*, 5(1), 45-52.
- Awolaju, B.A. (2016). Instructional Materials as Correlates of Students' Academic Performance in Biology in Senior Secondary Schools in Osun State. *International Journal of Information and Education Technology*, 6(9), 705-708. <https://doi.org/10.7763/IJMET.2016.V6.778>.
- Bloom, S.B. (1974). Implication of IEA Studies for Curriculum and Instruction. *University of Chicago School Review*, 14, 2-6
- Corengia, A, Pita, M, Mesurado, B and Centeno, A. (2013). Predicting Academic Performance and Attrition in Undergraduate Students. *Liberabit. Revista de Psicologia*, 19(1), 101-112.
- Ebenuwa-Okoh, E.E. (2011). Family Violence and Sibling Abuse in Nigeria Families. *Research Journal of Applied Sciences*, 6(4), 240-243. URL; <http://www.medwelljournals>
- Ebenuwa-Okoh, E.E (2016). Family Emotional Climate, Gender, Age and Level as Correlates of Academic Performance among Undergraduates. *Journal of Advances in Social Science-Humanities*, 2:3, 1-6.
- Ezeazor, M.E.N. (2003). *School Environment and Teacher Effectiveness as Determinants of Student Achievement in Biology: A case study of selected secondary schools in Ibadan*. An Unpublished PhD Thesis, University of Ibadan.
- Ezendu, F.O. and Obi, T.N. (2013). Effect of Gender and Location on Students' Achievement in Chemistry in Secondary Schools in Nsukka L.G.A. of Enugu State, Nigeria. *Research on Humanities and Social Sciences*, 3(15), 2013.
- Farooq, M.S, Chaudhry, A.H, Shafiq, M and Berhanu, G (2011). Factors Affecting Students' Quality of Academic Performance: A Case of Secondary School Level. *Journal of Quality and Technology Management Volume VII, Issue II, December 2011, 1 - 14*.
- Griffin, T. D., Wiley, J., Britt, M. A., and Salas, C. (2012). The Role of CLEAR Thinking in Learning Science from Multiple-Document Inquiry Tasks. *Int. Electron. J. Elem. Educ.* 5, 63–78


- Grissom, J. B. (2004). Age and Achievement. *Education Policy Analysis Archives*, 12(49). Retrieved July 17, 2010, from <http://epaa.asu.edu/epaa/v12n49/>.
- Gustin W.C, Corazza L (1994) Mathematical and Verbal Reasoning as Predictors of Science Achievement. *Roeper Rev* 16: 160-162.
- Hansman, R., Tyson, L. & Zahidi, S. (2009). The Global Gender Gap Report. *A report published by the World Economic Forum, Geneva, Switzerland*, Retrieved from <http://www.weforum.org/pdf/gendergap/report2009.pdf>. on 12/10/2012
- Ibrahim, S.T, Sabitu, A and Magaji, Y.M. (2016). Comparative Analysis of Gender Performances in Biology, Chemistry and Physics among Pre-Degree Students of Federal University, Dutsinma. *International Journal of Educational Benchmark (IJEB)*, 5(1), 108-118.
- Iroegbu, V.I and Famakinwa, A. (2015). The Effect of Modelling and Direct Teaching Strategy on Achievement of Primary School Pupils in Basic Sciences. *International Journal of Research in Arts & Social Sciences*, 8(2), 313-321.
- Iyamu, E.O.S (2005). Relationship between Verbal Ability and Students' Achievement in Secondary School Social Studies in Southern Nigeria. *Language in India*, 5(2), 1-7. <http://www.languageinindia.com/feb2005/verbalabilitynigeria2.html>
- Jabor, M.K, Machtmes, K, Kungu, K, Buntat, Y, and Nordin, M.S. (2011). *The influence of age and gender on the students' achievement in mathematics*. International Conference on Social Science and Humanity, IPEDR vol. 5, IACSIT Press, Singapore.
- Kothari, C.R. (2004). *Research Methodology; Methods and Techniques*, 2nd edition. New Age International (P) Limited, Publishers.
- Lake, W and Boyd, W. (2015). Age, Maturity and Gender, and the Propensity towards Surface and Deep Learning Approaches amongst University Students. *Creative Education*, 6, 2361-2371. <http://doi.org/10.4236/ce.2015.622242>.
- Michelli, Madeleine P., (2013). "The Relationship between Attitudes and Achievement in Mathematics among Fifth Grade Students". *Honours Theses*. Paper 126.
- Milun, T, Mardešić, J and Kovač, G (2016). *Do Gender and Age Impact Student Success?* Proceeding: Contemporary Issues in Economy & Technology (CIET2016), S198-S208. www.paper.researchbib.com/view/paper/88516
- Momanyi, M.J, Too, J and Simiyu, C. (2015). Effect of Students' Age on Academic Motivation and Academic Performance among High School Students in Kenya. *Asian Journal of Education and e-Learning*, Volume 03 – Issue 05, October 2015, 337-342.
- Mozuraitis, M Chambers, C.G and Daneman, M (2016). Verbal Ability, Argument Order, and Attitude Formation. *Front. Psychol.* 7:1374. <https://doi.org/10.3389/fpsyg.2016.01374>.
- Nnenna, G.E and Adukwu, B.C (2018). Influence of Gender and School Location on Senior Secondary School Student's Achievement in Biology Inagbani Education Zone of Enugu State, Nigeria. *Journal of Education and Practice*, 9(21), 45-51
- Nwankwo, M C and Madu, B.C. (2014). Effect of Analogy Teaching Approach on Students' Conceptual Change in Physics. *Greener Journal of Educational Research*, 4 (4), 119-125, <http://doi.org/10.15580/GJER.2014.4.032414160>

- Ochonogor, E. C. (2006). Gender Barriers in Science, Technology and Mathematics Education (STME). In E. A. C. Okeke, & M. Opara (Eds.), *JSTAN, Gender and STM Education* (series No. 1, 90-100).
- Ochonogor, E. C. (2011). Performance Analysis of Science Education Undergraduates: A Case Study of Biology Education Students. *US-China Education Review A* 5 (2011) 682-690.
- Odagboyi I, A. (2015). The Effect of Gender on the Achievement of Students in Biology Using the Jigsaw Method. *Journal of Education and Practice*, 6(17), 176-180.
- Offor, E. I. (2007). Gender Stereotyping in some Popular Primary Science Textbooks used in Primary Schools in Imo State: *Journal of Women in Academies*, 4(1), 232-240.
- Okeke, E.A.C. (2007). *Making Science Education Accessible to All. 23rd Inaugural Lecture*, Nsukka, University of Nigeria.
- Okeke, E.A.C. (2008). Clarification and Analysis of gender concepts. *Focus on Research, Reproductive Health Education, and Gender sensitive classrooms. Science teachers association of Nigeria-Gender and STM Education series No. 2.* 5-8.
- Okoli, O.D (2017). Age and Parental Variables Influence on Academic Performance of Senior Secondary Students in Biology: A Study of Umuahia Education Zone of Abia State. *International Journal of Research in Social Sciences*, 7(11), 168-175.
- Okwo, F.A., and Tartiyus (2004). Effect of Position of Diagram and Cognitive Style on Biology Achievement of Pre-National Diploma Students. *Journal of Science Teacher Association of Nigeria*. 39.1 & 2: 89-93
- Olasehinde, K.J and Olatoye, R.A (2014). Comparison of Male and Female Senior Secondary School Students' Learning Outcomes in Science in Katsina State, Nigeria. *Mediterranean Journal of Social Sciences MCSEER Publishing, Rome-Italy*, 5(2), 517-524.
- Olatoye, R.A and Aderogba, A.A (2011). Performance of Senior Secondary School Science Students in Aptitude Test: The Role of Student Verbal and Numerical Abilities. *Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS)* 2 (6): 431-435.
- Rabgay, T (2015). A Study of Factors Influencing Students' Academic Performance in a Higher Secondary School in Bhutan. *Rabsel - the CERD Educational Journal CERD* 16(2), Autumn 2015, 74-97.
- Sanni, K.T and Emeke, E.A (2017). Direct and Indirect Effects of Personality Type and Learning Style Preferences on Students' Achievement in Senior Secondary School Biology in Osun State, Nigeria. *European Journal of Educational Studies*, 3(11), 825-839. <https://doi.org/10.5281/zenodo.1133870>
- Smith, R.L and Sanders, K (1981) The Effects on Student Achievement and Student Perception of Varying Structure in Social Studies Content, *The Journal of Educational Research*, 74:5, 333-336, <https://doi.org/10.1080/00220671.1981.10885325>
- Tzu-Ling Wang, M.S. (2008). *Brain Hemispheric Preferences of Fourth- and Fifth-Grade Science Teachers and Students in Taiwan: An Investigation of the Relationships to Student Spatial and Verbal Ability, Student Achievement, Student Attitudes, and Teaching Practice*. Dissertation Presented in Partial Fulfilment of the Requirements for the Degree of Doctor of Philosophy in the Graduate School of The Ohio State University. Available at: https://etd.ohiolink.edu/!etd.send_file?accession=osu1213169329&disposition=inline
- Ugwu, F.J and Eze, S.O. (2005). *Comprehensive Biology Methods*. Goodseed Publishers, Nsukka.


- Varughese, V.K. (2010). Academic Achievement of International Biological Science Students under Two Teaching Regimes, *Bioscience Education*, 16:1, 1-8, <https://doi.org/10.3108/beej.16.5>
- Veloo, A, Perumal, S and Vikneswary, K. (2013). Inquiry-Based Instruction, Students' Attitudes and Teachers Support Towards Science Achievement in Rural Primary Schools. *Procedia-Social and Behavioural Sciences* 93, 65-69.
- White, K. (1982). The Relation between Socioeconomic Status and Academic Achievement. *Psychological Bulletin*, 91,461-481.
- Yang, D. H. (2010). Gender and Classroom Learning. *Psychology in the Schools*, 22, 08–223.

Author Information


Saheed Ayodeji Adejimi

 <https://orcid.org/0000-0002-7344-3852>
African Centre of Excellence for Innovative
Teaching and Learning Mathematics and Science
University of Rwanda-College of Education
Rwanda
Contact e-mail: jimmysaheed@gmail.com

Wenceslas Nzabairwa, Prof.

 <https://orcid.org/0000-0002-8299-2001>
Department of Educational Foundations,
Management and Curriculum Studies
University of Rwanda-College of Education
Rwanda

William Aino Shivoga, Prof.

 <https://orcid.org/0000-0002-1694-9339>
Department of Biological Sciences
Masinde Muliro University of Science and
Technology, Kakamega
Kenya
